

Field Notes ~~+~~
~~Serial~~

George D. Stinton

Miss Alice
Harris
George B. Harris

December 8, 1926

We took our carbide light and went out for a hunt. went north to the river but never saw any thing but on our return I saw this rabbit no 12070 run across the trail in front of me, after skinning it eyes which is a dull red I shot it with my 410 shot pistol

December 9, 1926

This mammal was trapped 2 mi., n. of Divisadero by the river Rio Seco which is about 60 ft. wide and is of a rock formation. I found a large tree by this river which I set a small steel trap on some rocks covering it with leaves and then I put a few drops of some wolverine scent on a root and some rocks here is where I caught my first tropical specimen no 12082

Metachirops

Metachirops

December 10. 1926

No 12090 Was taken by a bait set along Rio Seco 2 mi. north Divisadero by placing a trap under a small bush and then digging a hole back of trap, I placed a Turtle Dove for bait. I pulled off the feathers and covered trap well and then cut open the Dove and let it bleed around trap & rocks. When I found this opossum it was asleep but when picked up by tail it fought and bit sticks which I placed in its mouth.

December 10 1926

No 12091

this species was trapped 2 1/2 mi N. W. of Divisadero by a trail along Rio Seco in a hole in bank. I placed a small trap in opening then covering it lightly with leaves. I then put a few drops of Burbanks wolverine scent on a root of a small tree close by.

When I found it next morning I picked it up by tail and it bit me on the thumb it seems to be very quick altho it seemed very dull when found.

Didelphis

Cylindragus

Dasyfusus

December 10 1926

NO 12093 was shot in a bush 2 mi N. of Divisadero at night. I was walking along trail with carbide light and it came down trail and did not seem to be afraid of light but when about 10 ft. from me it climbed up a small bush for protection I shot it with my 410. shot pistol.

December. 11 1926

NO 12105

Was shot in trail at night by me
Was shined by carbide light and was shot with 410 shot pistol

NO 12106

Was shot in trail at night 2 mi. N. of Divisadero it was heard in brush and when seen it was feeding on leaves but when we stopped it started to run then I shot it with pistol these mammals are covered with ticks and are called the rabbit horse by natives they say that a certain time of year the rabbits ride on their back they also use the fat of these for stomach trouble. and they also use them for food

Didelphys

Conepatus

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December 11. 1924

No 12107.

This species was shot at night when returning from hunt by side of trail we heard it climb up in some vines on investigating we found this mammal up in vines it was then shot with pistol

December 12. 1924

No 12108.

Was caught in trap along Rio Seco $2\frac{1}{2}$ mi N.W. Divisadero with a bait set bait being a dove which I shot, then I hanged it above trap when found it had a hole dug in sand and didn't move when I came upon it, then I shot it with 410 shot pistol, it never even scented which is very unusual for this mammal

December 13., 1924

We moved to Monte Mayor for bats

December 14., 1924

I hunted at night but never got anything it being too moon light

December 15., 1924

Went to mine to get bats with R. A. helped him put up them and made skeletons of some.

December 16. 1924

got up at 4 o'clock went 3 mi to mines hunted on way over but no luck then helped put up bats that we got.

Sigurdson

December 17. 1926

We moved to Tabasco mines for more bats here I helped get bats and skin them. to moon light to hunt

December 18. 1926

Set a trap line of small traps helped skin bats was to moon light to hunt the moon being up all night and is a full moon it being so one cannot shine eyes of mammals

December 19. 1926

No 12220

was taken in large snap trap $\frac{1}{2}$ mi N. Tabasco in Kaffir corn field. in a run under some bush and dead grass here I placed a large trap baited with corn meal in run.

this was on side of a steep hillside covered with Kaffir corn and sugar cane I then went with R. A. to mine after bats which we had to have, then helped put up them.

December 20 1926

We moved back to Divisadero to work some more mines and hunt at night but didn't get there in time to hunt any that night. it being late when we started from Tabasco

Dasypus

December 21, 1926

No 12221

Was shot at night $1\frac{1}{2}$ mi West of Divisadero along trail in Carbon forest. When first heard it was eating leaves and then started to root like a hog in leaves that were upon the ground after beetles and bugs when I shot this specimen it ran off through the forest as though nothing ever happened but I found it after a search through thick under brush dead lying on its back.

No 12223 [= 12222]

Was shot at night 1 mi west of Divisadero along trail in Carbon forest. When first heard it seemed to be coming toward me but it changed its course and went back through brush. I went back to another trail a few feet away and here I shot it at very close range with shot pistol it ran off through forest but was found after some 10 or 15 minutes search for it, it also was lying dead up on its back.

I also shot three more of these specimens but they could not be found in thick brush and vines this Carbon forest has thorns on it so one cannot.

Stylized signature

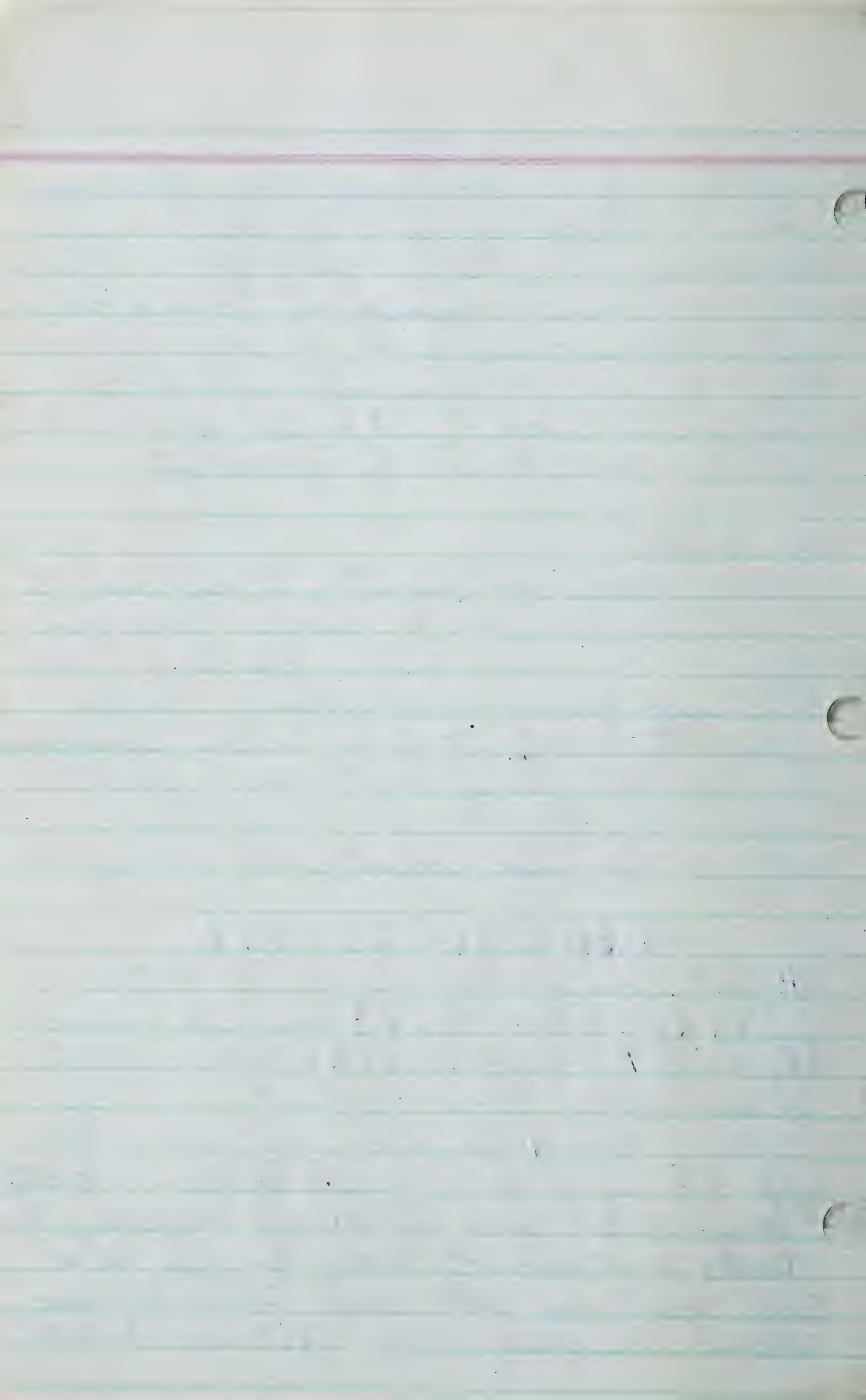
follow these mammals very far in
it. I stood by side of trail and
watched one of these feed for a while
it not being afraid it would first
eat leaves then root in leaves and
dead brush for insects which they
fed upon. I shot it with 410 shot
pistol but could not find it.

No 12223

Was shot at night $1\frac{1}{2}$ mi West of
Elvisadero in a large opening
which is used as a pasture there
being grass and young carbon
brush in it. it was seen jumping
about in grass but when shot it
was standing on its hind feet look
at me to see what was going on

December 22 1926

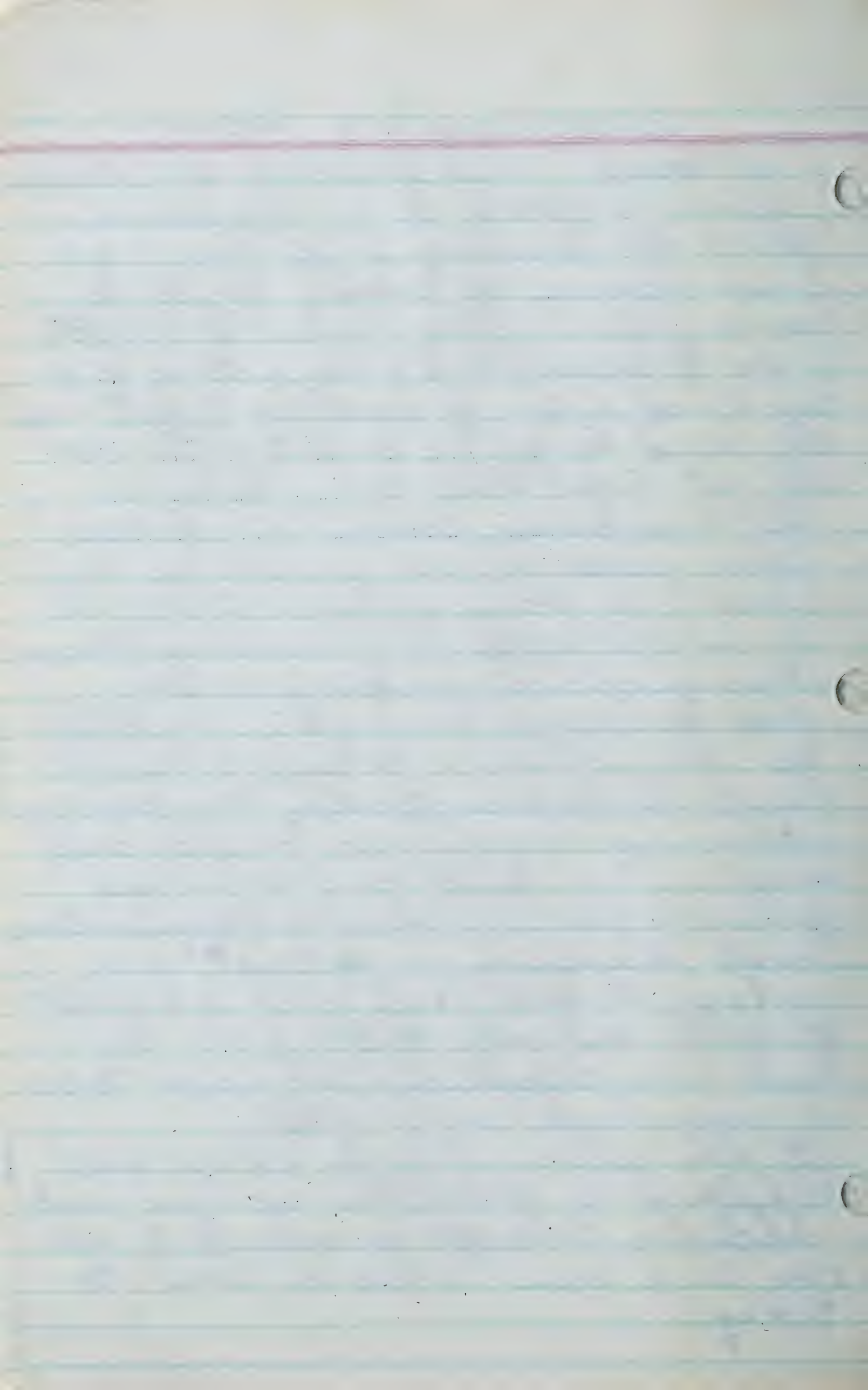
I put up specimens no 12221
no 12222 & no 12223 which I shot
the night before no 12221 & no 12222
Was rather hard to put up they
being hard to skin on account
of being a hard shell on its back
and on its tail it being necessary to
take a pair of bone snips and
cut bone in tail out this being
about the only way getting it out



December 23, 1926

I went north west of Divisadero about one mile to a banana grove for solitary bats here I got 6 specimens of which we have never gotten before until R. A. got 6 on December 22 he getting 5 of one kind and 1 of another I got 4 of the kind he got 1 of and 2 of the ones he got 5 of these bats hang on the banana leaves in where there isn't much sunshine and close to a damp place. there is a small stream running through this grove it making a very good place for these bats. and they are found in a place where a large leaf has partly broken off it being a very nice place and making a kind of a V shape place where is where I found these bats hanging in two in a place I shot these with a 410 shot pistol and only killing one the rest were crippled. they seem to be a very hard bat to kill.

I then returned to the house and helped to put them up and make alcoholic bats out of some R. A. got over to a mine where he went to today



December 24, 1926

We packed some of our specimens and some equipment for a trip after Coyotes & Wild Hogs

December 25, 1926

A Merry Xmas & Happy New Year
Wasn't able to work today

December 26, 1926

Visited some old tunnels but never discovered any thing new or different from what we had already taken in other mines

December 27, 1926

Packed some more specimens of Bats for shipment

December 28, 1926

put tags on bats ready for formalin and put them in formalin then packed some more Bats for shipment

December 29, 1926

We moved to Manzanilla for Coyotes & Hogs arriving there at 6:30 that night after 9 days hard ride

Procyon

Canis

December 29 1926

No 12259 was shot near corn field near Rio Gracoran at night by Jose Moralis who was hunting with carbide light

December 30 1926 (Gracoran)

this mammal was caught $2\frac{3}{4}$ mi west of Rio
No 12260 was caught by me in a trap that I set the day before in a clearing of about 5 or 6 acres that had grass growing in it but had been pastured the stock making trails through this field every which way. which are used quite often by these animals after looking over the field I placed two no 3 traps under and in between two trees fastening them to a drag I covered traps with grass broken up so not to interfere with trap going off then I took some Blood meal or tankage which I had with me I sprinkled a quantity of this around traps and over them. the next morning they found that this mammal had dragged my drag a short distance from where I had set traps. When it first seen us it tried to get away but the closer we got to it the less it tried to escape finally it layed down and watched us every move we made we then took a picture of

Oregon

him in trap and where it was caught. upon opening its stomach we found hog fat and hair and a foot of pigeon. He was in good flesh but not fat, they are very destructive to live stock down here.

December 30, 1926

No 12261 & 12262 was shot at night by trail in a small ditch about 2 1/2 mi west of Rio Gracoran. I went down trail for a long ways going south but never saw anything the wind blowing from north making a noise I decided to return on same trail had not gone very far when I saw both of these coming out of a small ditch the female was a head of male she come up to close for me to shoot her so I shot male first which was standing on his hind feet then the female ran across trail and in bush a short distance then she to stood up on hind feet to see what had took place these mammals have large red eyes when light is flashed on them

mephitis

mephitis

December 30, 1926

No 12263 was shot near a rock fence by trail at night it ran across trail close to me but kept on going until it reached the rock fence then following it for a ways it came to an opening in rock fence here it stopped to eat then I shot it these have a tiny reddish white eye not every far apart, this mammal was shot 2 mi west of Rio Gracoran. Very fat stomach contained fruit breeds,

No 12264 was shot at night by trail in small ravine about 1 1/2 mi west of Rio Gracoran it also had small reddish eyes and was first seen in trail but too close to shoot then it went down in this ravine where I shot it with shot pistol it stomach contained grasshoppers but was not very fat

December 31, 1926

I skinned No 12261, 12262, 12263, & 12264 salted them then packed ready to return to Divisadero

January 1, 1927

We returned to Divisadero arriving there at about 5:30 o'clock

Tamara

January 2 1927

We pack our equipment for Valcanso San Miguel went to San Miguel stayed there that night

January 3 1927

We boarded train for Batres where we went upon Valcanso San Miguel Arriving there late that afternoon not in time to set any traps

January 4. 1927

As I was going along a ravine setting traps I noticed a hollow in a tree about 3 feet high at one side was an old stump that was hollow upon look in this stump I saw what I first thought to be skunks but upon investigating farther I discovered these 2 specimens No 12266 & 12267 I then shot them with 410 shot pistol several times before I got them this tree stood at the edge of a coffee plantation on west side of Valcanso San Miguel No 12267 a female was shot twice in shoulder and side but never killed her then I took a wire on the end of a stick and tried to get it

Samuel V. Van Dyke 18 July

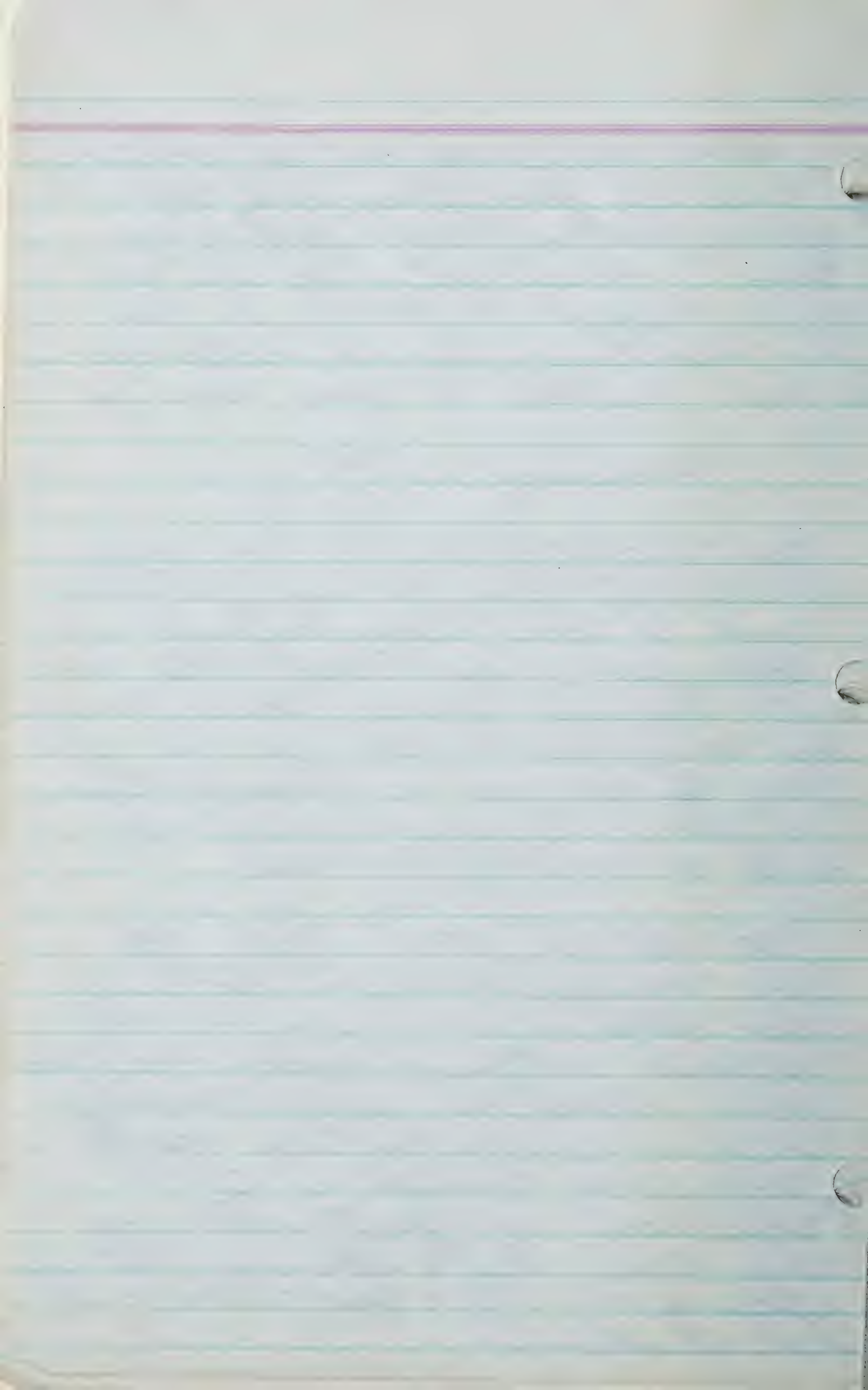
Conclusion

over its head but it would take its front claws and take it off as fast as I could put it on then I finally got it on its tail and dragged it out of its nest they had leaves in the hollow for a nest neither of these were fat

January 5 1927

No 12279 & No 12280 was seen running along ground but soon took to trees along hillside in coffee grove here I shot both but in different trees these mammals are very hard to see in tree after they climb up as their pelage is about the same color as bark on trees all but tail

No 12281 was shot by Jose Morales when out looking for hogs it was very fat and stomach contained leaves and grain which looked like Kaffir corn seed it had leaves in its mouth when they brought it to me this was my first skin of this kind that I skinned but after sticking myself a few times soon had it skinned



January 6, 1927

I set traps and looked at traps that I set day before looked for a small squirrel that natives say is here but so far haven't been able to find it. at night I took my light and went hunting about 8 o'clock when I started down trail which leads almost direct west to Bates. having went along this trail for a long ways we took another trail which lead south through heavy timber went a long ways up this trail but never saw any thing so set down on log for a rest was rather tired so soon decided to return on our way back which is a very hard climb in loose Volcano ashes which does not afford very good footing. had come quite a ways when all at once I noticed a pair of eyes up in a tree about 20 feet from trail which I took for a opossum so shot at it with shot pistol but it disappeared in tree I looked tree over then I seen it in another close by so shot it this time with 12 ga. shot gun with no 7 ch. shot but still it never come down so I began looking again

Potos

Uruguay

then I heard it make a queer noise behind me upon looking here it was back of me in tree then I shot it again with 12 ga. this time it fell to ground. When I was going to pick it up another one jumped down out of same tree and went off through brush upon investigating my Kill which I thought to be a opossum I found no 12298 lying dead after talking to R. A. found that this mammal is very hard to kill and when I was skinning it found a 22 rifle bullet in hind leg which evidently had been there for years cause wound had all healed up and formed a pocket around it

No 12299 & 12300 was shot same night by Jose Morales and guide which went in different direction than I did on Valcano altho we were miles apart I could hear him shoot I was down near Bottom of Valcano he being higher up in rocks look for cats but never seen any No 12300 had had its tail broken in several places but was healed up when killed but was crooked and end gone

12301 Procyon 2a 7th J. + R.A.

12302 Potos " "

12303 Potos " "

12304 Potos " "

12305 ~~Potos~~ ²¹⁰⁴⁰ ~~Diadelphs~~ Potos

12306 Diadelphs

12307 ~~Diadelphs~~ Nasua

January 7. 1927

skinned and salted no 12298, 12299 and 12300 which we got the night of 6th was too tired to go hunting night of 7 so R. G. & Jose went down trail that I went night of 6th they shot one potoe on way down and got to more coming back and one proryon on way back.

Jan 8 1927

I skinned & salted the following
no 12301. no 12302, no 12303
no 12304. no 12305, no 12306, & no 12307,

No 12305 & no 12306 was caught in hollow tree in coffee grove in traps that I set several days before no 12305 had eaten part of its foot of that was in trap try to get away which is unusual for this mammal.

No 12307 was caught by dog in thick forest & brush when R. G. went to his traps was treed twice by dog before it was finally killed by dog. R. G. not having any gun but 22 shot pistol and only had one shell for this which he shot it with but was like a ant biting as was about 60 ft away from him

12,528 Reithrodontomys

January 9. 1927

I and Jose Morales went after hogs that were said to be here on Volcano but we never saw any or any signs of them we traile^d through thick jungle for about 4 hours then we returned to house at one o'clock hot & tired at 4 o'clock that afternoon I took some small traps farther upon Volcano for mice there is a bunch of small tree like bushes growing up where I set traps and quite a bit of grass there to

Jan. 10. 1927

I went to look at traps upon Volcano that I set the day before upon looking at first trap if held a harvest mouse which was not dead it being caught by one leg & tail. this trap was placed in a bunch of grass by a hole that was perhaps 4 or 5 inches deep and about three inches a cross. there was some more grass & bushes close by and a few pineapple bushes also where I set traps but did not catch anything then I went down in a ravine and set traps in the lava rocks & ledges some in bushes & grass. here I caught

12331 - 12340 Peromyscus

12345 - 12352 Peromyscus

peromyscus, they seem to be very plentiful here in this ravine. I caught twelve of these in this place some old and some young. upon looking in their stomach we found red fruit which I found after looking and which we took some leaves to find out what kind of a tree this is this place where I caught these mice is 4300 ft high.

January 11, 1927

I took more traps up for harvest mice after look at other traps which I took light more peromyscus I set traps for harvest mice in likely places.

One trap held a large female peromyscus by both front legs and a young one was sucking it was about half grown. I caught it with hands and killed it also after cutting mother open she was embryo in her which is peculiar that she had not weaned this mouse yet. these peromyscus were ~~taken~~ taken in about same places each morning but higher up on side of ravine I did not catch any of these altho their undoubtly were up there to

12359 R. eithrodontomys

January 12, 1927

I went to look and take up traps as we were leaving the Volcano to meet Van Rossem. I took one more Harvest mouse this morning it being a female this making a pair upon opening her. We found 5 embryos in her. This mouse was trapped in about the same place as was the male only a few feet away by some grass & bushes. This was the only mouse that I took out of 36 traps set for harvest mice. Some of these traps were set along same ravine that I caught peromyscus but higher up but never caught any thing.

January 13, 1927

We packed skins & skeletons ready for shipment then our equipment what we had ready for San Salvador which took nearly all day.

January 18, 1927

Got up at one o'clock to hike to Batres to board train which left at 9 PM. It took about 5 hours of hiking to get to Batres. On our way down

12364

Tamandua

to Batres along trail we heard
a rustling in leaves. Having a
flash light with us we looked to see
what it was that rustled the leaves
after looking on ground for a while
but not seeing any thing. I noticed
a small bush weaving back &
forth and in this bush we saw
a animal which I first thought
was a Potos but R. A. said not
said it was ~~an~~ a ant eater and
sure enough it was. Well we
didn't know how we were going
to get it as we needed it but
also had four front toes so I said
here take my shot pistol and shoot
it. Well ~~the~~ shot at it with shot
pistol not over eight or ten feet away
and never even made it bleed well
we only had one shell with us so we
concluded to catch it and kill it
with what ever we could so I bent
over bush and R. A. got it by tail
and after pulling it out we watched
our chance and got it on its back
then we stood both of us on its
breast for about five minutes before
we finally killed it. This making us
three of these two females and one
male. Its stomach had ants and ant eggs
in it it had fed very heavily on these.

Weyman

Weyman

January 15: 16 17 18 19

were spent in San Salvador
waiting for Van Rossem and
getting some more equipment

January 20 1927

No 12370 was first skinned
on rock wall in a large river
flat that has grass in it
but when we came toward it
it jumped down of rock wall
and went a short distance in
some weeds here it was shot
it had six teats and was suck-
ling young. was milk in teats
and stomach contained some fish
and mice hair.

No 12371 was shot on ^{rock} wall
in same pasture as No 12370
but was still on rock wall about
four feet high when shot. it had
two embryos that measured 100 mm.
its stomach contained grass & mice
hair

mesophytes

mesophytes

symplocos

Jan 20 1927

No 12372 was shot in large grassy pasture in river bottom its stomach had grasshoppers in it

No 12373 was shot in a pine apple bush in large pasture in river bottom but after I shot it it crawled in a shallow hole beside pine apple bush. then I dug it out of hole it had grass in hole for bed, stomach had grasshoppers in it and it was very fat

Jan 21 1927

No 12380 & No 12381 was shot in brush beside trail at night they were both together and was kill with one shot when skinned I found several thorns in ears & skins which looked like they had been there for some time and they were also covered with wood ticks

Uruguay

Uruguay

January 22 & 23 1927

we ran out of carbide for lights
and couldn't hunt at night
traps did not catch any thing these
two days

Jan. 24 1927

got carbide for lights and we were
off for a hunt I followed the river
for a long ways looking for otter
but couldn't see any then I took
to the brush, got lost and wandered
about for hours try to find my
way out and looking for eyes

finally I came to a marshy place
here I saw a couple of eyes looking
at me but was to far to shoot at
so I made my way toward it very
slowly through brush finally when
in shooting range I shot at it
when upon investigating to see
what it was found no 12397
lying dead so I put it in a sack
and went on but a short distance
and saw eyes of no 12399 looking at
me it was setting in a cow trail
only a short distance from no 12397
which was evidently were water
I put no 12399 also in sack and
went on wandering around in this
marsh when I heard a noise to one
side of me and up in a large tree

Chilodactylus

Muraenichthys

Cocculid

Jan 24 1927 continued

there were two eyes shining at me and I moved a little it went to top of tree then looked down at me then I shot it it being no 12400. still I did not know the way out of bush & marsh so kept on try every trail that was well beaten and finally I came to a road that had a rock wall along it and a large pasture on one side here I saw no 12401 eyes shining out in pasture but it ran toward rock wall and then stopped and looked at me again then I shot it. well wasn't sure where I was at yet so followed trail and it crossed the river didn't see any use of crossing so took a cow trail & through bush once more and wandered about for a long time but finally came out in a road about three miles from where I started and my light commenced to go out but the moon had risen and it made fairly good light. had come quite a distance and had found another road and had only followed it a short distance when a rustling noise was made beside the trail and upon the side of ~~trail~~ a tree no 12394 was shot

Polygon

Ureya & Ureya

Spilogale

January 24 1927

No. 12395 was shot by P. G. S
on the same night Jose Moralis
shot no 12396 & 12398 in the
river bottom on hacienda where
we were stationed

January 25-

No 12402 was caught in a rock
wall that fenced off about an acre
that was planted in coconuts trees
& Banana trees I set a small
trap in a hole in rock fence and
then baited it with a quail that
I had shot for bait I covered trap
with feathers of quail then placed
quail back in rocks so what ever
wanted it would have to cross trap
in reaching it here I caught no
12402

Scincus leopoldi

1927

January 26, 27, 28, 29, 30, 31 and

Feb 1 was spent in getting up to Los Eses and waiting for our equipment to get up here which is up on a mountain called Los Eses miles that is 8000 ft high

Feb 2 1927

We set a trap line up in mountains and in corn field around house which we are staying which is surrounded with corn fields and ditches on both sides with running water in them

Feb 3, 1927

While up on the mountain looking at traps that we set for mice I noticed the branches of an oak tree moving about 60 ft high and after watching for a while I saw No 12425 jumping from limb to limb here we shot it with 410 shot pistol the trees in this forest are covered with a parasitic growth that you can hardly see the animals that are in trees move the day before we saw one running along on some fence poles but was gone before we could get a shot at it of through the brush and vines

Didelphys

Sciurus

Mosus

Feb. 4. 1927

On Feb 3 I set some traps on side of hill in holes that had been gopher holes that were used by some thing so I took some traps and set them at the mouth of holes on Feb 4 I took no 12434 out of trap when I reached it it was trying to free its self by chewing at its foot that was in trap this mammal had not moved around very much had hardly moved the weeds & dirt around its hole where I caught it.

No 12440 was shot in tree in Oak rain forest at an alt. of 8500 feet high these oaks are very thick and have vegetation and groves growing on them and also have moss on them

No 12441 was treed by two of the natives dogs and was shot in small tree about 60ft high up in Oak rain forest there was quite a fit of diggings all through forest that I took to be their diggings

Urwayon

February 5 1927

I took my light and went up in mountains to hunt but upon arriving there the clouds were drifting over them and was of a very thick fog which was impossible for light to penetrate to see only a few feet ahead of you so I came back down in a large ditch below clouds and hunted back to the house. on way back I saw some eyes for just a second and then they were gone. then about 200 yds farther up the hill I saw them again for a second and then they were gone. I kept on going down the ditch and I came over a little ridge and there were the eyes again but was gone before I could shoot then again they appeared in a corn field across ditch from me here I shot it. it being about 50 yds from me upon reaching it I found it was a large male fox that is NO 12452

12 4 6 3 4 4

12 4 6 5

Spitzogale

Feb 6, 1927

I skinned no 12452 and salted it and put up 2 Heteromys & a peromyscus that was caught up in the Oak Rain forest. then at night I took my light and Hunted up in mountains but never saw any thing. the clouds began to come down about 11 o'clock so I returned to the house.

Feb 7, 1927

I caught a coon in a trap but it got away it pulled out of a no 2 jump trap that I had set in a large mountain spring that has a very thick growth of bushes & ferns around it.

no 12478 was caught in a trap that was baited with a robin and set under a large log in dense bushes & ferns up in Oak Rain forest at 8000 ft alt. these mammals had been taking mice out of traps and eating them, we have noticed several traps that had only some hair in them and all bloody when they had evidently had eaten them and we saw their tracks in soft dirt and in the trails in the dust. this one specimen no 12478 was very fat when I skinned it which shows that they feed very well up in these forests

Computus

Feb 8, 1927

I looked at traps that I had set but got nothing. have five sets for cats baited with catnip oil and along beside trail that we saw tracks but have never caught any yet but see tracks nearly every morning I go to look at traps in the trail I cannot set traps in trail on account of the natives using it every day to drag wood down it

Feb 9, 1927

I went to look at traps it having rained the night before I noticed cat & coon tracks in the trails along where I had traps set a few feet away. but never got any cats upon visiting one trap I had set at a hole in a steep bank in oak rain forest I found that this trap held a large female hog nose skunk No 12492 this trap had been set three days before at this hole so cannot say whether or not this is a den or not.

Close by where I set trap I noticed where some animal had been digging in moss and soft ground which I took to be these skunks

Comparative

Feb 9, 1927 Concluded

I then went to another trap I had set at the same day but farther up along the same ridge under a large tree that had fallen down the roots extended several feet out on each side of trunk of tree here I saw some kind of a den that had been used quite often so I set trap in run a few feet from mouth of den and covered it with some rotten leaves and dirt. When I came to this trap I noticed that I had caught some thing but could not see what it was so I climbed upon roots and there it was with one front foot in trap and the other ~~it~~ had up in tree and was standing up on hind legs ~~it~~ had heard me coming and was looking for me this was a very large male Hog nose skunk No 12493 this male skunk was very fat.

Pinos.
Didelpheya

Feb 10, 1927

On the night of Feb 9, 1927 R.A. Jose Moralis and two natives went up in mountains for a hunt I did not go, had fallen the day before and hurt my hip so I did not try to go as it was hurting quite a bit. They hunted until one o'clock and getting a Potoro no 12501 which was killed in a tree by Jose Moralis and a opossum no 12500 which was shot by one of the natives in a tree. It was moon light and was very hard to see eyes as the water on the leaves on trees glistened very much like eyes with your light shining on them and the moon too.

Feb 11, 1927

I went up the mountain and looked at traps then took some farther up in timber and set them traps that I had set held nothing after setting traps I hunted for a while but not seeing anything I came back to the house at 2 o'clock.

12, 5-21 *Sciurus leppii*

12-5-22 *Sciurus leppii*

Feb 12 1927

I went up and looked at traps
found a dog in one and others
were undisturbed so I went
hunting shot a squirrel in some
small bushes and after that I
saw nothing I and R.A. hunted
until 4³⁰ in big timber but
got nothing, R.A. shot a squirrel
early in the morning also
this timber where we were is
very thick and much fallen trees
lay upon the ground covered
with moss and other stuff
making great places for animals
to hide in day time so you
cannot see them.

I looked for some dens under
old fall logs but could not find
any or any signs of a den.

in one place I noticed fresh
mouse diggings in some leaves
close by a small stream of water

We saw many birds up here
in big timber today it being a
clear day they were up in high
timber.

these skins about are no 12521
no 12522 and See R.A. Stiles notes
for no 12523 as He caught it, don't know
He set trap or nothing

Orthogonyo 3, no no.??

See R.A.S. Notes 3, 7.

Feb 13 1927

Was not feeling very Pert so stayed in Camp today and helped put up skins we got on Feb 12 it being dark when we returned to camp on Feb 12 so did not get any skins put up that day so stayed at camp and put up skins all that day. also packed some skins ready to go down Hill

Feb 14 1927.

Went up on mountain and took up some traps and set some more along trail and in fences for small mammals that we have been seeing tracks of this dusk.

also caught a large gopher in a grassy pasture with ferns in it

this gopher was caught in a no 0 victor spring jump trap. when found it had clawed up the ground as far as it could reach and it showed fight when we got up close to it. Have used your macebe gopher traps but have had no success with them as gophers are too large for them some times you could see a few hairs on prongs which had gotten hold of gopher but pulled out as prongs do not extend up far enough to get a good hold on them there fore we are using no 0 victor jump traps for them. we have also had

My photos

several gophers eaten up when found only a small part was left of them they we pulled back in hole as far as trap would let them go we was just wondering if their could be such a thing as them eating one another. Could not see any tracks around hole where gopher was caught this is down at 6500 ft where I had gophers eaten. have also had them eaten up in rain forest but could see tracks of animal up their in soft dirt where trap was set it looked like a Cat track near as we could make out. Have set traps for this thief but haven't gotten any thing so far

Feb 15, 1927.

Went and set traps for gophers. Also caught a skunk up on Hill at 7000 ft high in trap that I set along a fence and close by trail that we use going up and down trail to top of mountains I set trap then put some blood meal around trap which evidently attracted the skunk to it by the smell

Scarus laevis

Eylotagrus

Scarus laevis

Scarus laevis

Feb 16, 1927

I went and looked at gopher traps but got nothing in them so took them up and reset them in another place where I found fresh workings in a bushy place on side of steep hill.

Caught a squirrel in a trap up in oak rain forest under a old log.

Feb 17, 1927

I set some more traps and then returned and put up no 12539 a rabbit which two natives boy had brought down to us alive they caught it in a hole after dogs had ran it in their

Then put up no 12541 a squirrel that was shot up in oak rain forest by Jose Morales who was looking for birds.

Feb 18 & 19, 1927

I was sick didn't go to look at traps but R. A. Stinton came in with a squirrel that was caught in a large snaptrap in rain forest that he had set the day before for mice this was a young male specimen.

Urocyon

Urocyon

nephitis

Feb 20 1927

was feeling better so went to look at traps that I had setting but got nothing some traps were throwed Van Roessem went with me to shoot quail I had seen on 17th I shot one then on coming down thro brush I was walking down a cow path and a fox no 12562 jumped out in it in front of me about 20 yds from me I had only no 10 shot so I Banged away but thought I never got it it ran on down path about 30 yds and then fell dead no 12563 was caught on east mt, slope in thick ferns and grass in trap.

No 12564 was captured alive by natives and was brought to ~~us~~ that way this being a female the only one we have from up here so far was glad to get it.

Feb 21. 1927

I went to look at traps but had nothing in them. took some of them up and reset them. then went and looked for quail for Van but could not find any so I returned to the house.

Mephitis

Mephitis

Feb 22 1927

I went to trap that I had set their ~~were~~ in one trap that I had set for a gopher. Nice Skunk. No 12591 this set I placed a trap in the tunnel that gopher had dug covering trap and leaving the hole open at mouth where trap was placed. up on visiting this trap the specimen had pulled the trap back in the hole and was in their hiding these animals I think are the ones that eat up the gophers after they are caught in trap

No 12592 was caught in a bait set of some birds bodies that Van Rossum had skinned. I took bird bodies and trap down to a small ditch that runs into another larger ditch. this small ditch has no water in it and is covered with small brush and black berries vines over it where many birds roost in them I took and placed trap in bottom of ditch about 6 ft back from other ditch and covered it with some leaves then I took and dug a hole in side of bank and put the bird bodies in it then I took some small sticks and stuck them up around bait and back toward

Myrtle is

Scarus deppai

Scarus deppai

Feb 22, 1927 continued

the trap so an animal that was after the bodies would have to cross trap in reaching them here is where I caught No 12 592 also a skunk. these skunks had nothing in their stomachs but when I skinned them they were very fat. No 12 590 was shot up in oak rain forest by bird man Jose. m. morales who was up there shooting birds. these squirrels are very funny in their way of escape they take to the ground and brush when they see you if they are in a tree altho they could very easily escape in trees as they are very thick and have such a growth of parasites on them you can hardly see them when they are in them some times they run from tree to tree through the tops and then come down. and run off through thick brush on the ground.

Feb 23, 1927

I went to look at trap but got nothing but saw a weasel that ran out of one hole into another they being gopher holes. I set some traps and baited with a sparrow. Jose morales shot No 12 602 up over

Scimus

Scimus

Scimus

Scimus

Scimus

Feb 23, 1927 continued

in the cloud forest while
after birds.

No 12609 was caught in a trap
up in rain forest on north slope
by R. A. Stibton.

Feb 24, 1927

On Feb 23 I went hunting at night
got no 12613 a large female that was
suckling young I went to look
at trap got several mice weasel
trap was undisturbed but bait
was gone

No 12614 & no 12615 was caught
in and around a small stream
of water that on south bank it
is covered with brush and trees for
quite a ways on north bank it is
covered with large rocks and trees

Feb 25, 1927

No 12624 was caught under a rock
with a bait set of sparrow and was
a female with four young in pouch
No 12625 a peromyscus was taken
in the roots of tree that had slide
into a small stream with rocks
on one side of stream and brush on
other

Conspicuous

Penicillium

Penicillium

Feb 26 1927

No 12627 was trapped by R A Stinton
up in forest

No 12628 No 12629 & No 12630 was
taken in small ditch that has running
water in it, rocks and brush on both
sides of this ditch.

Feb 27 & 28. 1927 I got nothing
in traps and wasn't feeling very good

Mar 1. 1927

I went to traps but got nothing so
I changed traps to a nother ditch that
had corn fields on both sides and brush
along edge of banks.

Mar 2. 1927

I went to traps and got No 12638
No 12639 No 12640 and No 12641 was
caught in and close by water in ditch
I had set traps on march 1 No 12642
No 12643 & No 12644 was taken in
water where there was some brush
had clogged it up and was forced in
a small opening. One of these was
caught in a place where there were
two rocks one on each side and was
water running between them. This
looked to be where they had been
crossing from side to side I placed
a trap in water between rocks and
baited with oat meal and then covered
trap as best as I could with out setting
it off

1978

My father's name is [unclear]

Uruguay

March 3, 1927

I got nothing in traps. Hunted at night got nothing but one house cat that met with sudden death

March 4-1927

No 12661 was caught under a large rock on a high mound that is mostly rock it had a den under this rock.

March 4-1927

We went down two small ditches I killed another house cat. followed ditch down to the river then went down river for long ways over rocks through water and vines in places, one place I had to go up in timber & vines to get around a very steep place while I was making my way through brush I killed No 12674 a male fox. Not seeing anything else we returned to the house

Potos

March 7, 1926

I went up on mountain to hunt got up there at about eight o'clock. The moon was shining but very little in the dense timber had gone but little ways when I heard a poto holler so I made my way toward where I heard it upon arriving there I found no 12685 a male feeding in a fruit tree, after a load of B.B. it came down to earth we have found out that B.B. is the best load for these animals as no 6 & no 7 are not heavy enough to bring them down.

I picked up poto tied a boot lace around its legs and started on to see what else was in the trees, had not gone very far when I heard the bush cracking so I took it to be deer but it kept on coming toward me so I stood still with light in direction of noise, finally I saw a couple of eyes coming through tree tops, traveling very fast, I had to follow them through trees for quite a distance they never stopped to investigate my light but kept on going, there were two of them following one another, finally one came across my light and I shot at it once but missed it going through

Земельный 7.7

(1

нефтяной

Урсон

March 7, concluded

trees so I fired again and down it came it being No 12686. I followed the other for quite a distance but lost it in thick brush and trees. was following them by braking of branches and following the swaying limbs.

On my way up I saw ~~a~~ a pair of small eyes but took them to be a cat as was close to house but they kept coming toward me through brush and come on up to ~~me~~ within a few feet then stoped here I killed No 12687 with stick.

No 12688 was shot along ditch between Salvador & Honduras by R. A. STIRTON who was hunting along river.

March 8, 1927

We went up in the same place I had hunted the night of the 7th we got up there at about eight had gone quite a ways, but finally ~~Mr.~~ R. A. saw a eye up in tree bang and away it went I saw it and shot and missed it we followed it for quite a ways on up the

Potos

Potos

Potos

Concepcion

March 8. 1927 continued

Mountain when I finally heard it squall in a tree up I went and located it in a tree and every once in a while it would squall and up came R.A. to see what was carrying on so I got on one side of tree R.A. on other side finally I saw eyes I shot and so did R.A. at same time in excitement R.A. had pulled both triggers and suffered a bloody nose and missed what he was shooting. but No 12690 a large male Potor hit the ground. I saw two more eyes going down a limb I shot and down came 12689 a nice female both in same tree we put them in a sack and started on when we heard the limb breaking on ahead of us we followed it and finally it stopped in a high tree here I shot No 12691 another male Potor. we then had to quit cause of a dense fog that had settled down on the mountain. on way down we got out of fog and was coming down a path in brush we heard a noise in brush at one side of path here I shot No 12692 a female Conepatus

Scimus

March 9, 1927

helped pack to go down on the
10. went with Van to get blackbirds
eggs.

March 10, 1927

we left Camp Los Escos miles for
our lower camp which is in
the pine & scrub oaks. we
arrived at San Jose del Sacare. at
about 4³⁰ in the after noon

March 11, 1927

I went and set some traps
but never found anything that
looked very prosperous seem
no signs of big mammals
any where

March 12, 1927

look at trap got nothing Van Rosem
shot no 12709 in a large pine
about one mile west of camp
along toward evening I took my
gun and went to where I had
seen a squirrel nest the day before
I sat down on a rock in a small
ditch near nest and waited had
been there only a short time when
I saw some branches in a small
fruit tree bending thought it was
birds at first but after while I
seen my squirrel out on end of limb

Sciurus

Sciurus

before I could shoot it moved
and could not see it so went
up where it was feeding and
saw it up a short distance in
top of fruit tree here I killed
no 12710 another male

March 13: 1927

went to traps got nothing again
this morning so went back to
the house. While there I heard
some chickens over north in a
thick pine timber. looked for
chickens but couldn't find them
was tired so set down on some
rock under pine tree to rest
up in top of this pine was a
nest, made out of pine needles
and looked like a squirrel nest
was looking at nest when I heard
a noise back of me and up the hill
upon turning around I saw no
12712 up in another pine about
30 ft away from me, I shot it and
believe that its nest was the one
built of pine needles. this was
also a male

Scimus

Scimus

Scimus

Dide l p h y s

March 14, 1927

No 12717 was shot in pines on a pine ridge. there were two of them but other one ran through brush before I could get a shot at it

March 15, 1927

went to traps then went up on pine ridge to look for squirrels No 12725 was shot in a small oak tree near a trail and on side of steep rocky side of ridge.

No 12726 was shot in a pine tree near a nest that was in a oak tree on side of ridge near a trail. both of the specimens were females, first females that we have taken of this kind. these squirrels stomachs were full of yellowish substance which we took to be pine cones as we have saw pine cones partly eaten near where they were shot

March 16, 1927

No 12734 was trapped in a run in oaks & pines where trap was set, it also had seven young in pouch that measured as follows one 130 m.m., one 125 m.m., one 124 m.m., one 130 m.m., one 120 m.m., one 125 m.m., one 120 m.m., these measurements are total length

Sciurus

March 16: 1927 (concluded)

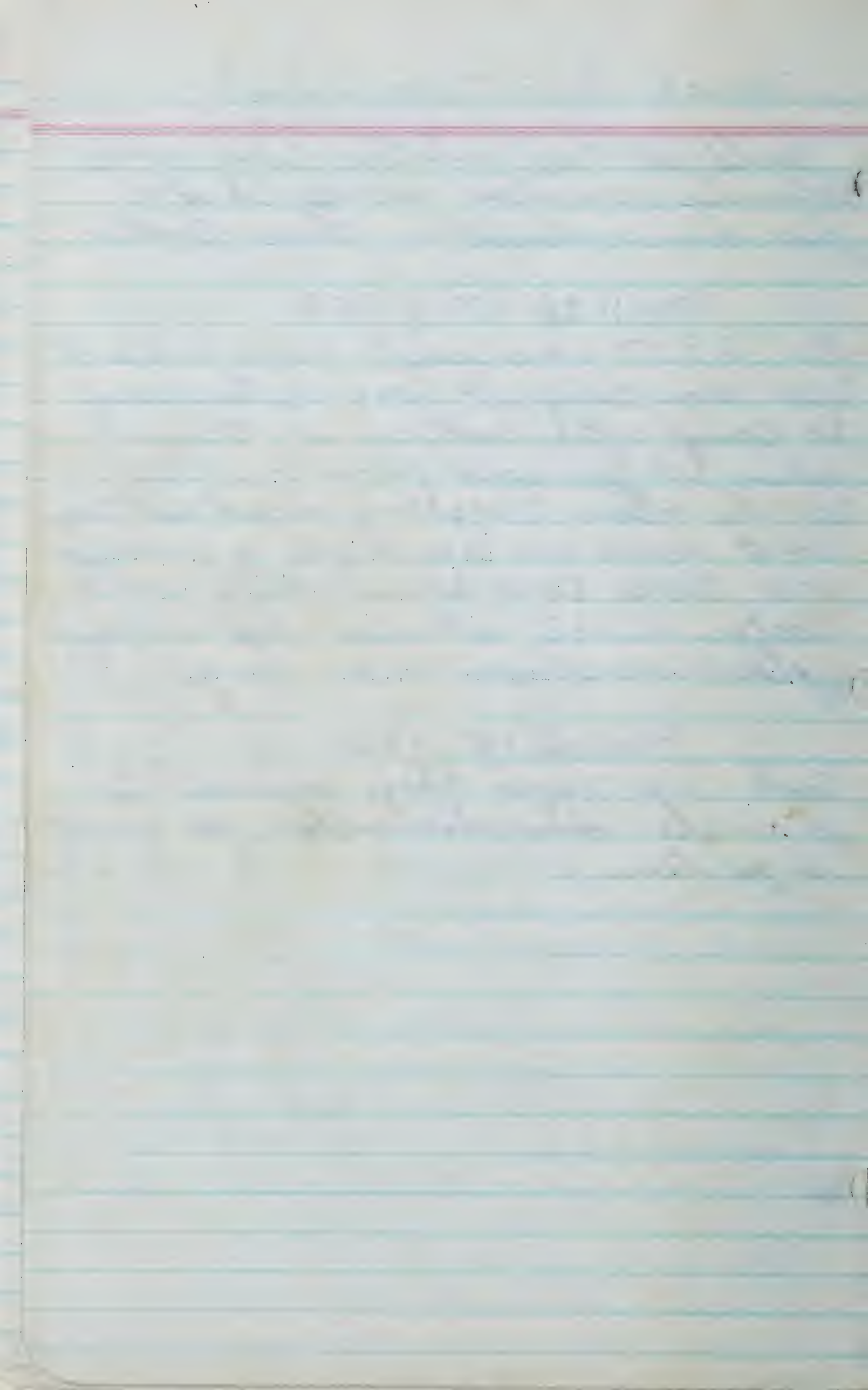
could not tell whether they were females or males. some had a few hairs started on their backs

March 17: 1927

No 12737 was shot in a small tree near camp. I was returning to camp after looking at traps when it jumped from one tree to the other over my head it then went down one tree into a smaller one close to a small ditch with water in it. it also had embryos that were eleven m.m. long.

March 18, 1927

took up traps then packed to go into San Salvador for more supplies.



March 29, 1927

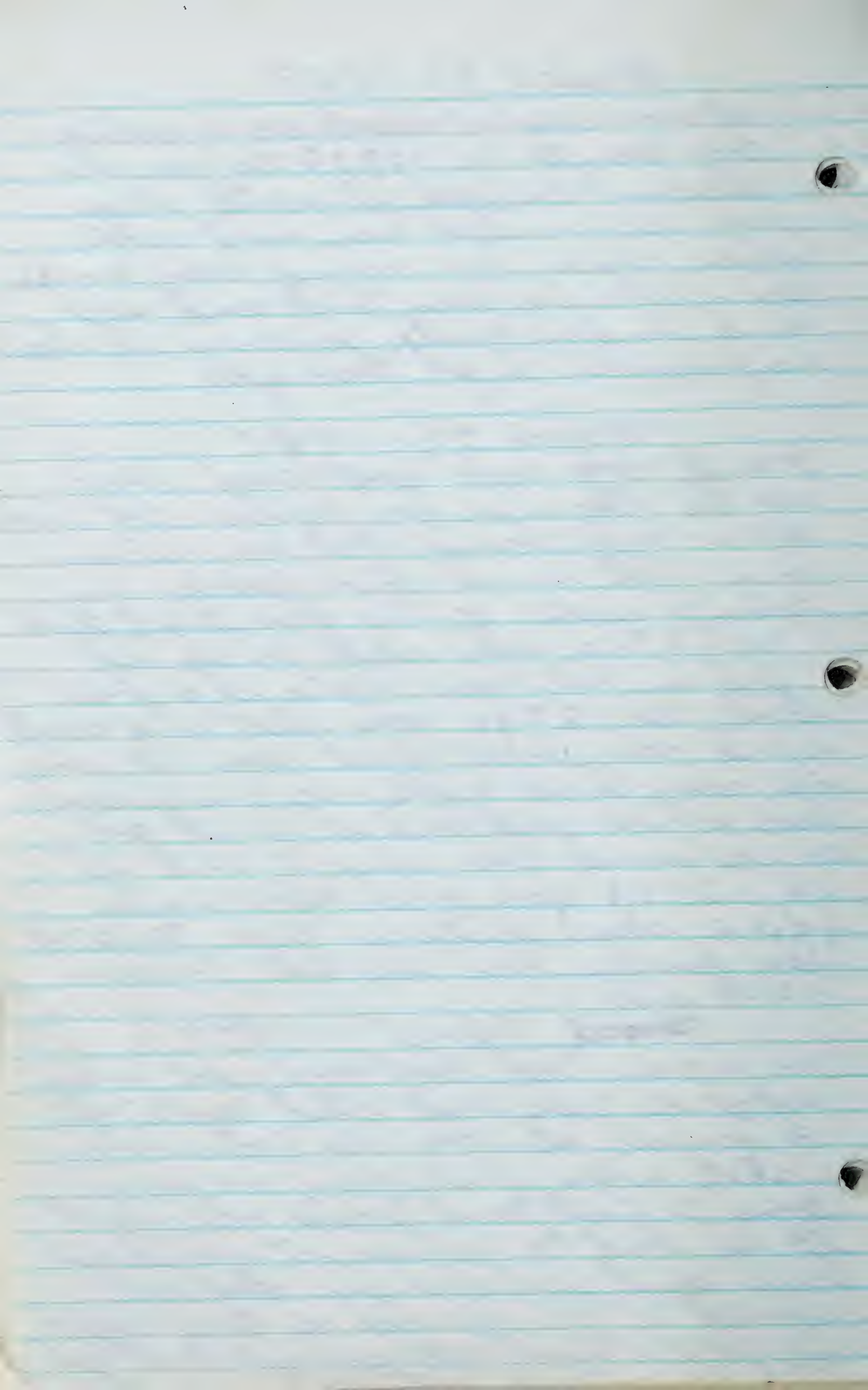
at evening on march 29 a native boy brought no 12739 to us. he having caught it with dogs over the mangol trees and roots where there are many coon tracks the roots are very thick and soft mud under neath making it almost impossible to get through.

March 31, 1927

I and boy took boat and went up the laguna for miles but never saw any thing but on returning we saw five coons in trees & roots of the five I got three no 12740 was shot on an old fallen tree near water edge from boat. no 12741 was shot on a small sand bar. when first seen it was in very thick roots, so I squeaked like a wee bird and it came out on the sand bar where I shot it no 12742 was shot near water edge a short distance from no 12741 these females have six teats three on each side

~~March~~ April 1, 1927

we again took boat and went along edge of trees and shot no 12743 a female it was in roots when shot, when first seen we was going to fast and could not shoot it so had to return it just set their and watched us did not seem to be afraid of our light also saw a small opossum but it got away before we could get to it



April 2. 1927

I hunted but never saw any thing so returned to house

April 3, 1927

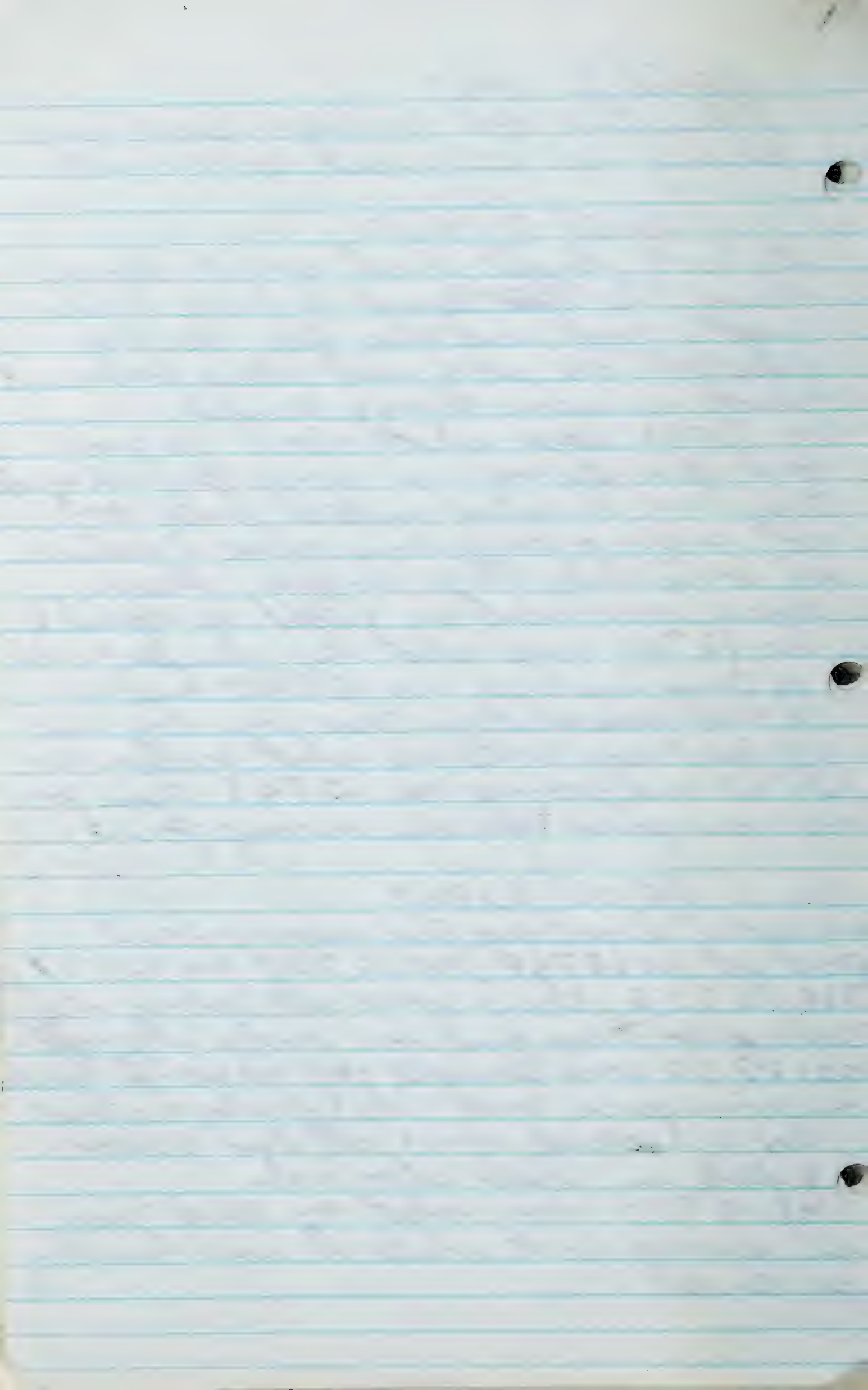
I took light and went down along the ~~Ocean~~ Beach where I saw rabbit track and also fox the day before no 12744 was shot along ocean beach in some thorny Brush no 12745 was shot about 100 yds back from ocean in some Brush and trees we hunted until late but not seeing any thing else I returned with only two rabbits, these

above was shot on night of April 2

no 12746 was shot in jungle north of Camp in tree, no 12747 and no 12748 was shot in tree in day time by Bird man with one shot mother no 12747 and young no 12748 these were in mangrove tree in swamp forest,

April 4. 1927

we went hunting in swamp forest and got no 12749 no 12750 no 12751 no 12752 these were all taken in mangrove trees and in roots at night no 12752 was caught by me with hands in mangrove tree the progeny that are numbered above all had crabs & fish in their stomachs no 12753 was shot by Bird man in swamp forest while he was hunting for birds



April 5, 1927

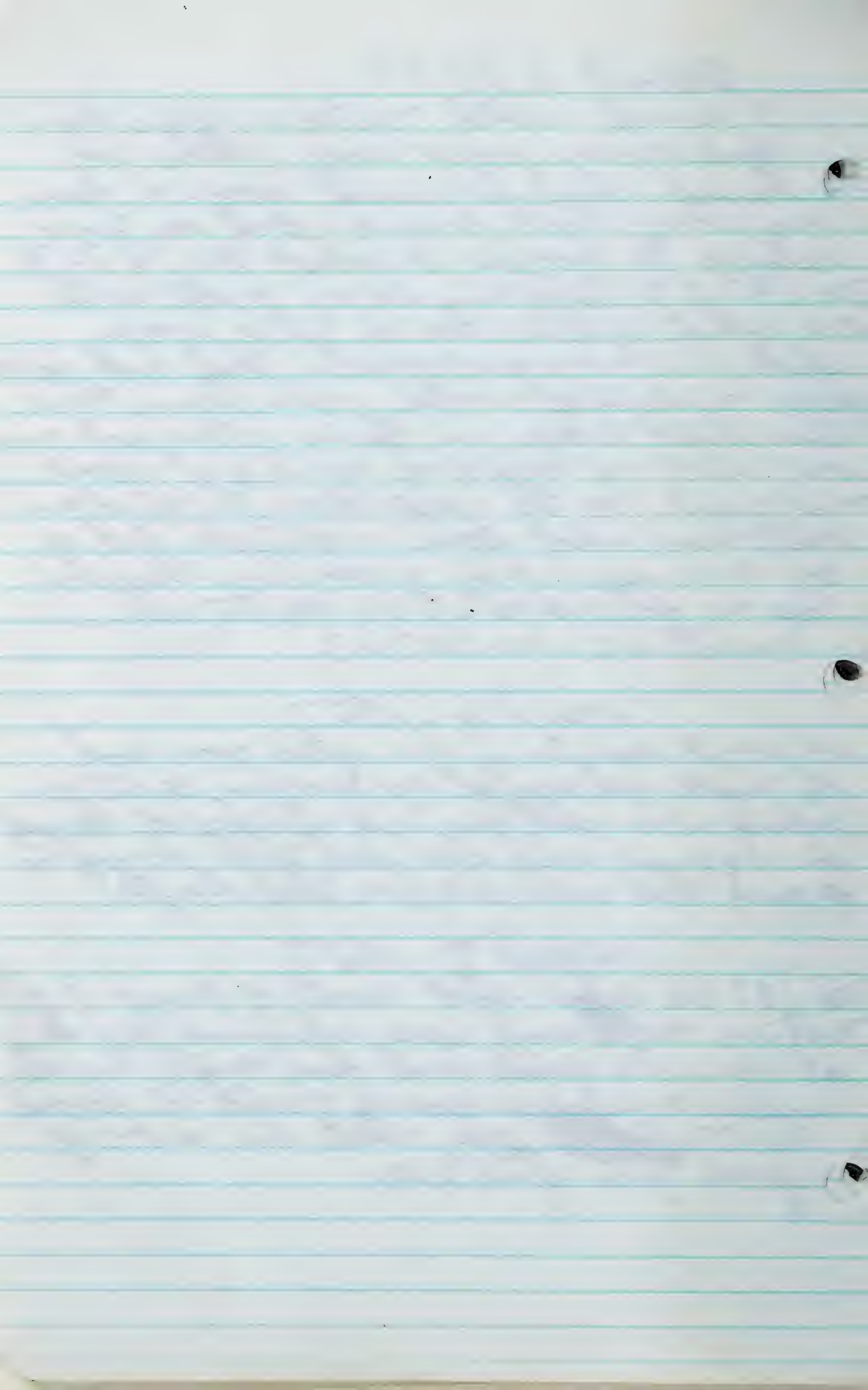
I went with native after deer but never saw any altho we heard what he said was a deer in very thick brush but on our return to house I shot No 12754 No 12755 coming down path with one shot of B.B. No 12756 was shot in mangroveroots that had about four inches of water over them these also had crabs in their stomach and was shot on night of April 4 at about mid night. on the next day the Bird man Van Rossem shot four squirrels out of one tree early in morning they are no as follows No 12760 No 12761 No 12762 No 12763.

April 6, 1927

We went hunting in after noon and at night but only got one opossum No 12764 which was shot in tree at edge of channel in lagoon and also had two young in pouch that were 60 mm total length

April 7, 1927

No 12766 was shot north of camp by native boy and was skinned by me it being a female and had milk in its udder but no young could be found No 12768 was shot in swamp forest from fruit tree,



April 8, 1927

No 12769 and No 12760 was shot in tree near path north of camp by R.A. Stinton as we was coming up trail the started to hollering at us but finally R.A. saw them up in large tree where they were shot No 12771 was shot in large brushy pasture north of camp near a small path where I saw it, its stomach had insects & mice, in it it started to rain so had to quit for that night

April 9, 1927

No 12776 was shot running through thick Collol palms in Swamp forest when first seen it was too far away to shoot so I went on down a path in the direction it was going and it came out of this thicket of Collol Palms about 30 yds from me then I shot it its stomach had the fruit of these Collol Palms in it I have seen several more but they get away before one can shoot as they are very fast on their feet

No 12778 was shot in a large tree near a small stream of fresh water about 9 PM in morning while it was feeding on some berries that were in the tree

April 10, 1927

No 12781 was caught in a large trap that I had set several days before in a run that crossed a small stream of fresh water in swamp forest. there was much fresh near trap. it had all it could reach all torn up and wrapped around trap chain. when I went near it it showed fight so I took a stick and got it over its neck and then placing my foot just back of ~~my~~ its front legs I killed it this way.

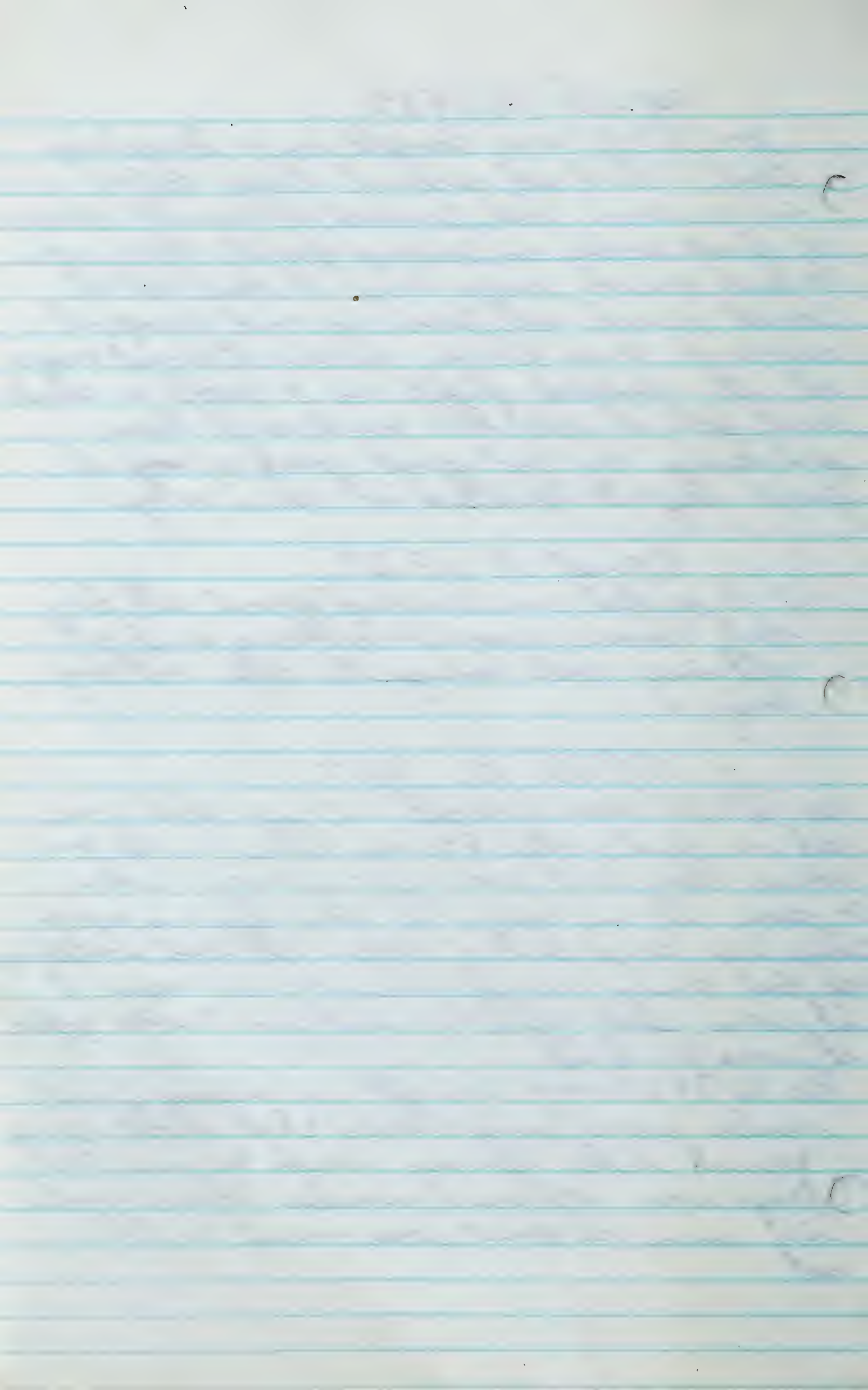
April 11, 1927

I hunted in swamp forest all day but never saw anything and got nothing but mosquito bites all day long.

April 12, 1927

No 12792 was caught in trap that was set in fresh water stream near a old tree where they had been going over. when I seen it in trap it was lying up on this tree to get out of water it was watching me but never moved when I came near it it was shot with 410 shot gun twice before it was killed

No 12793 was caught in swamp forest under some large weeds that look very much like rosem weeds to us. the trap was placed under these weeds in run. no bait was used on this set



April 13, 1927

we went hunting but never got any thing we got back to house at noon that evening we went hunting with our lights got four Procyon saw one other but it got away from us in Brush and collod ~~Bats~~ Palms

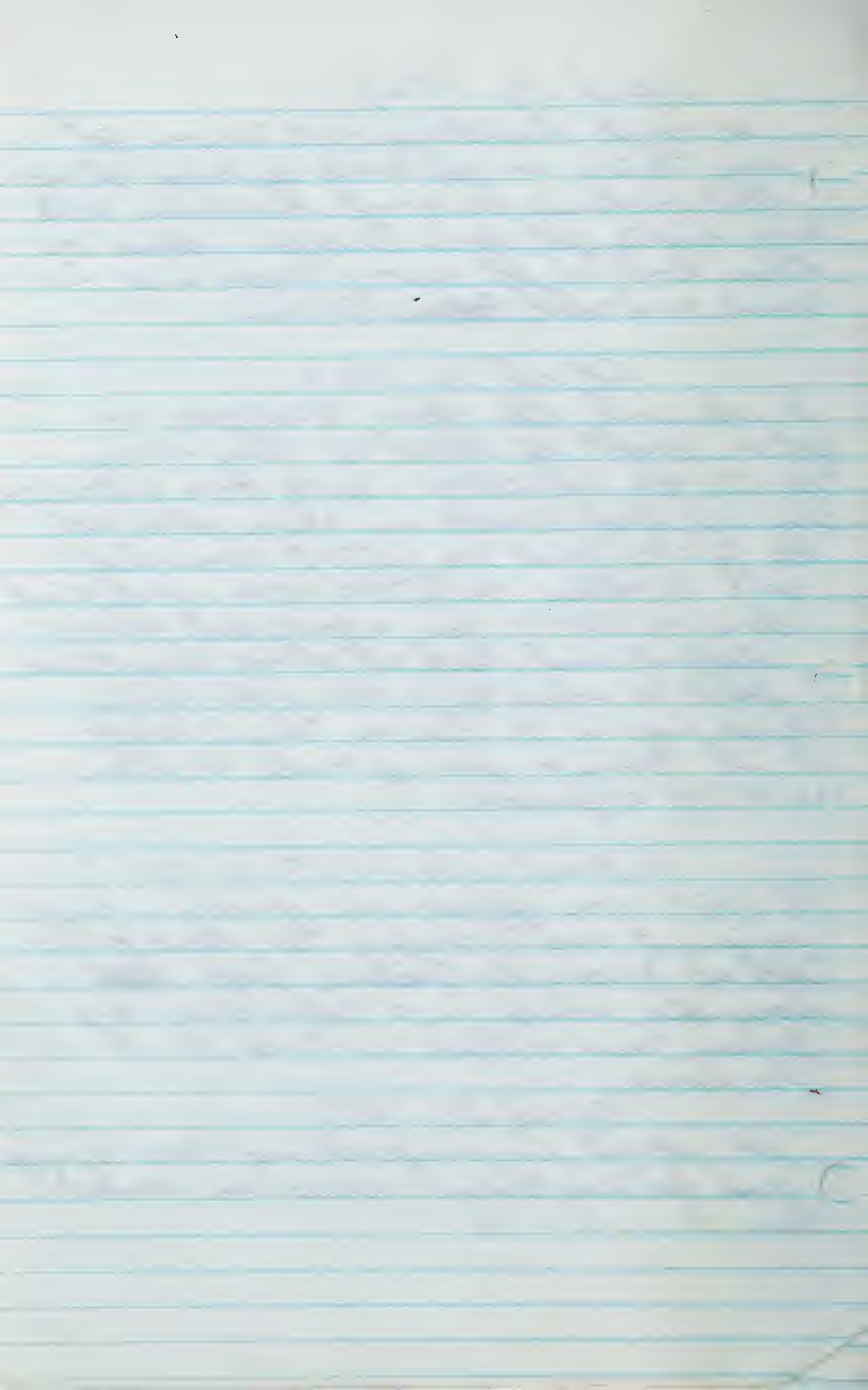
April 14, 1927

I skinned the four Procyon we got on night of April 13. they being no 12794 no 12795 no 12796 and no 12797 they all had Crabs in their stomach no 12795 and no 12797 was shot both together no 12795 was shot first then no 12797 ran a few feet away stopped and looked at me then came back to where no 12795 was lying kicking in the leaves then I shot it it being a young male the other no 12795 a female

April 15, 1927 to April 19, 1927 was spent in packing our equipment and coming to this place called Hacienda Chalata, Dept. ~~Sonora~~ Sonsoneta which is a Coffee finca and Balsam trees altitude is 9000 ft. at the house.

April 20, 1927

we spent in unpacking our things and getting things where we wanted them



April 21, 1927

I took my gun and went up in the coffee to a high ridge east of house where I could see what the country looked like while I was up there I heard a squirrel in a old tree barking away but could not see it so went on down a small ditch for a ways and set down was there only a few minutes when on the side of a large Balsam tree I saw another one which I shot it was a female when I went up to get it another one ran out of a decayed place in tree where it had some leaves this was about ten feet from ground but it hid in leaves in top of this tree so I could not see it on my way back through coffee I shot another one a female that was suckling young I also saw another one running on the ground through coffee but was too far to shoot at.

There were lots of nests in the trees so take it these species of squirrels are quite abundant at this place.

April 22, 1927

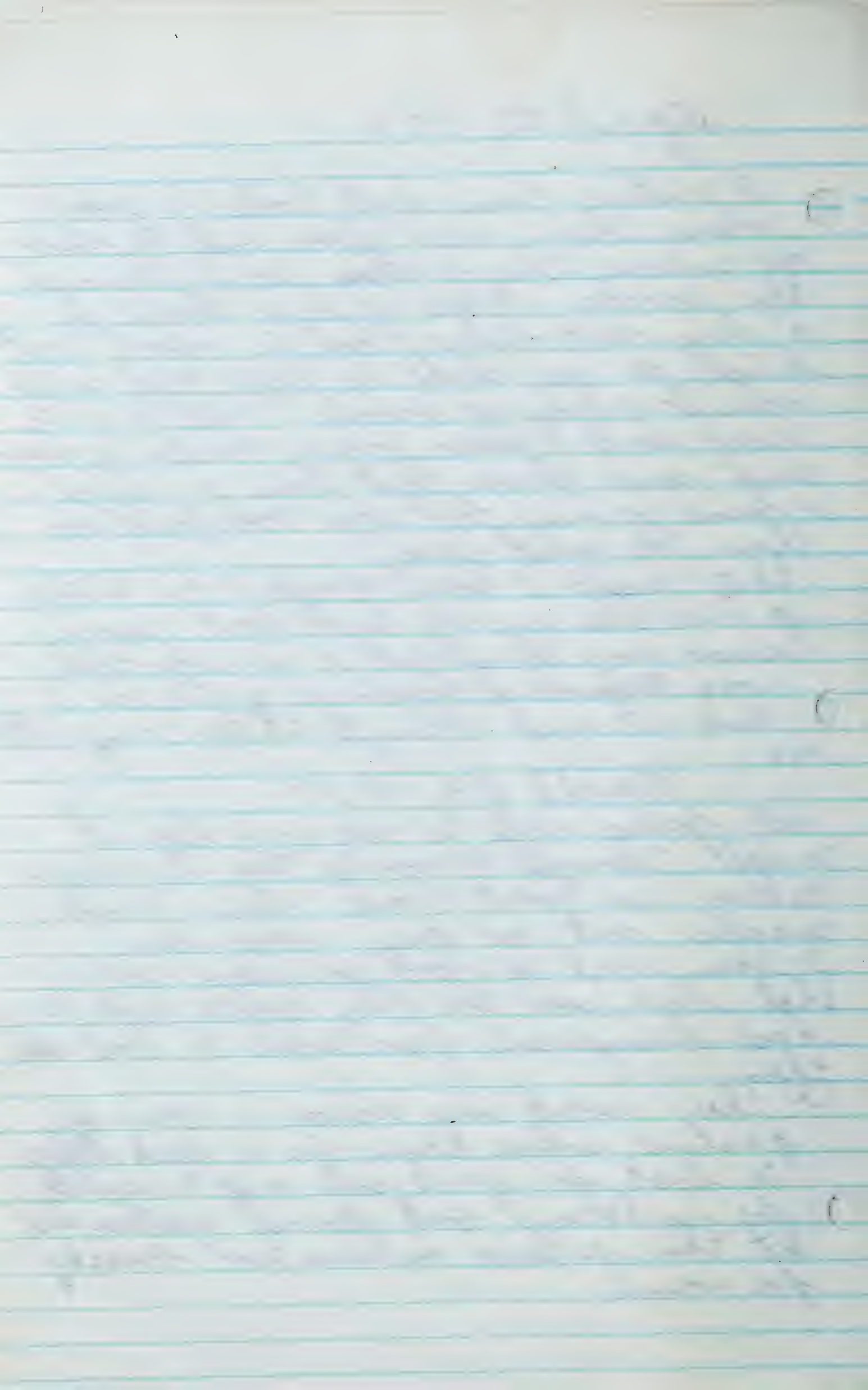
A native came and took me over where there were deer and to show me where the paths were through the woods at one place there is a long rock ledge that is about 20 ft high on one side is coffee and some small patches of brush. Next to this rock wall I saw many tracks of deer and saw three that was jumped a head of us but was too far from them for shot gun.

that night I went back over to this place to try my luck but never saw anything but a snake that was crawling across a path so I took it and brought it to camp with me.

April 23, 1927

not being able to see any deer at night thought I would try it again to day so went back saw fresh tracks but no deer were seen I then went to look for some bats that I had seen the day before but they had disappeared from where I had seen them.

I then went up across a brushy pasture where there is a rock ledge to look for pack rats and to watch for rock wrens but found neither one at this place as was too brushy for wrens.



April 24, 1927

I took some traps over south of camp to a rock wall where I set them in some holes and in runs that I found. I then skinned some mice for P.G.

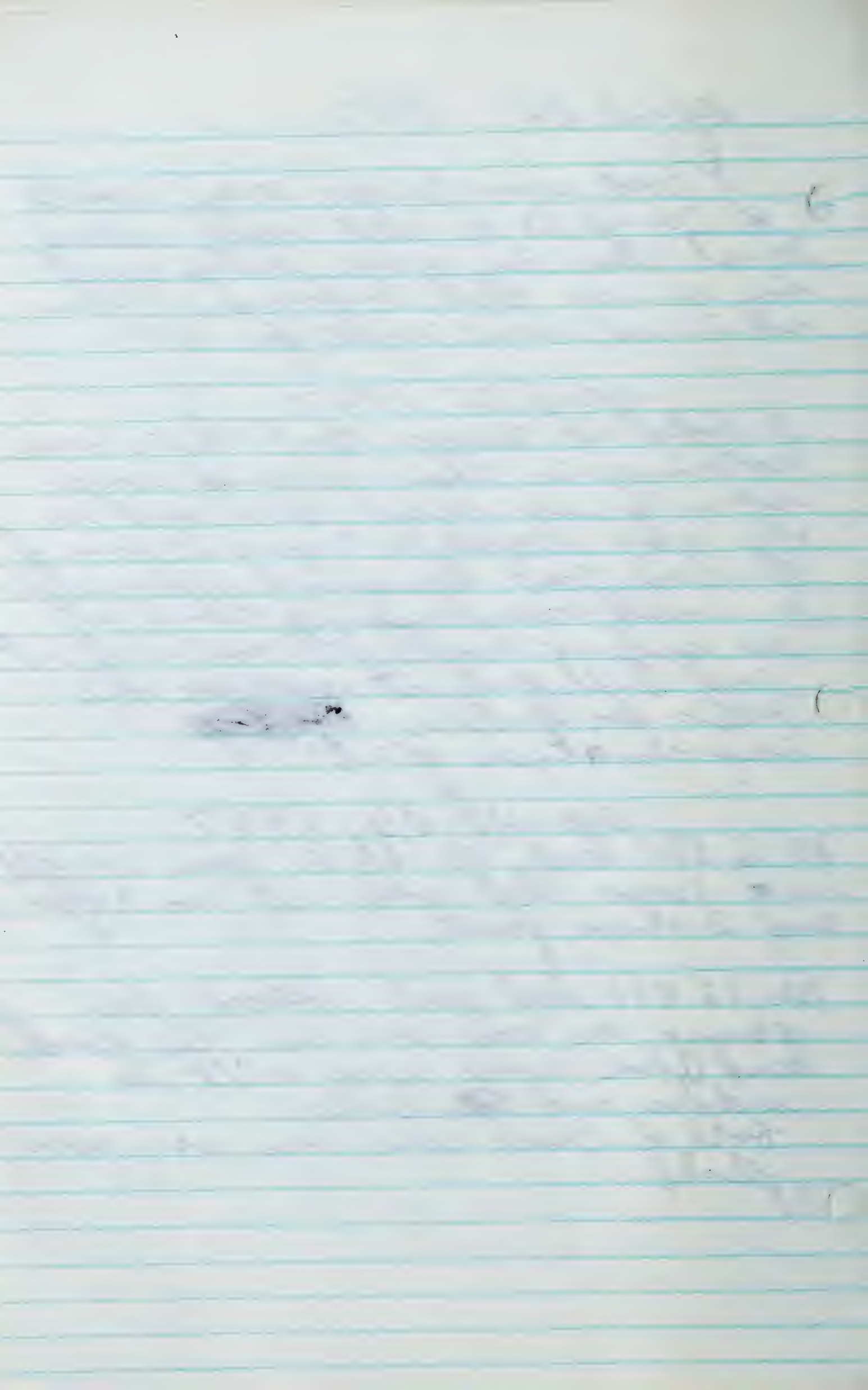
April 25 - 1927

I looked at traps but there was nothing in them several was sprung so reset them and on my way back to camp I found a lone bat hanging up under a small overhanging bank at one side of trail. I captured it and P.G. put it up see his notes for further ~~information~~ information of it.

April 26, 1927

No 12860 and No 12861 was caught in traps that were set in coffee and Balsam forest.

No 12861 had just weaned her young as none were in the pouch and there were some milk in udder and ~~the~~ teats, both of these were in very poor flesh.



April 27, 1927

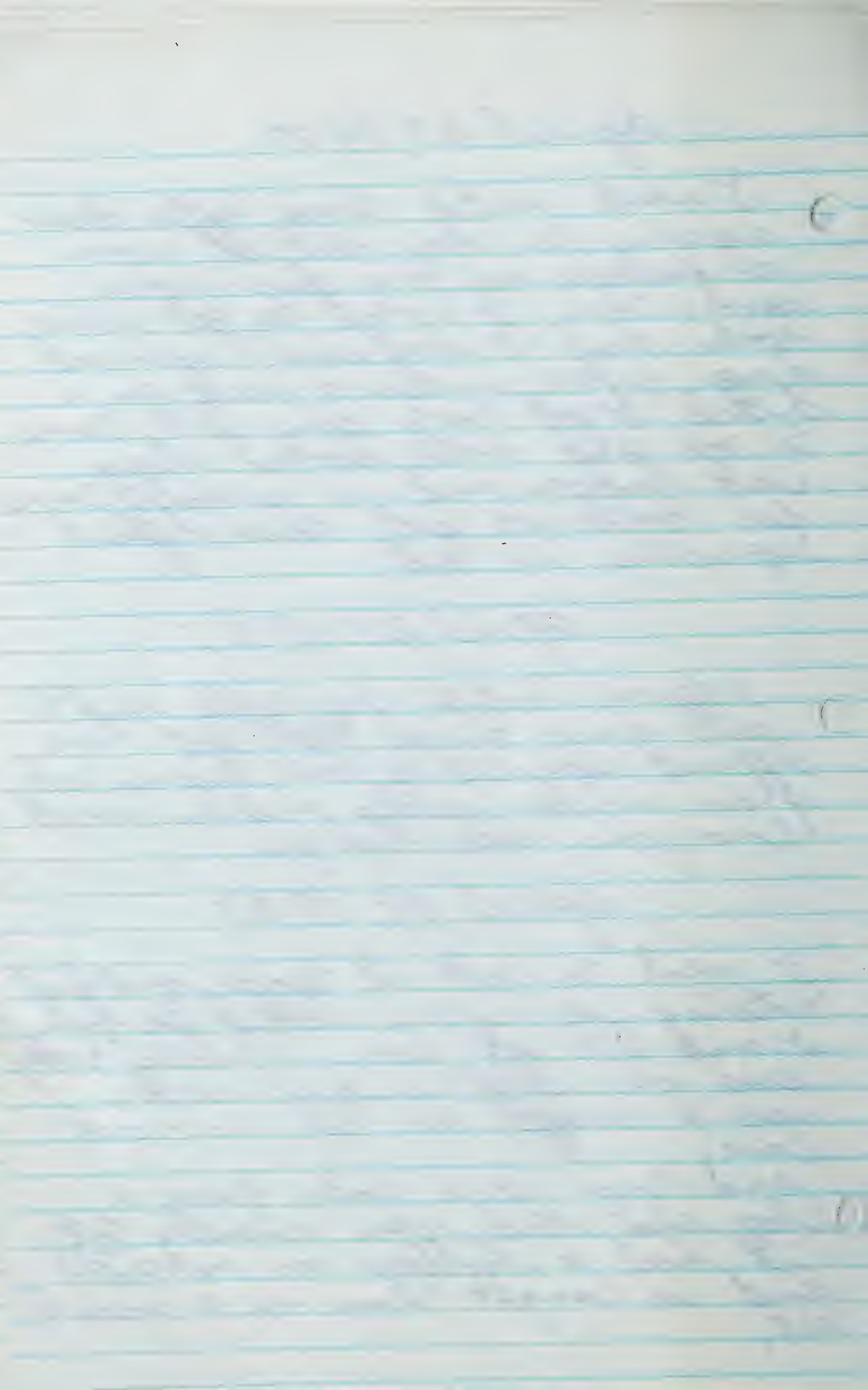
I went with boys after deer again today but it was a failure as no deer were seen, then I went to get some bats that I had seen several days before under a rock in a ditch I got two, then R.G. came to me and both looked along rock ledges and in small caves for bats we got three different species in all

April 28, 1927

I again went for bats and to set some traps we got two different species of bats again today from under rocks and in small cave in rock ledges

April 29, 1927

I went to look at traps, but had nothing so again looked for bats, I and R.G. got four species today some were shot under rocks some I caught in net in rock cave and two were taken from a log that had been recently cut it had a hollow on one side and we caught them in a small net,



April 30 1927

we packed ready to leave for
our next station on Vol. ~~San~~
Santa, arima.

we also got four new bats from
a tall building with a tin roof
that is used as a water supply house

May 1 1927 to May 3
1927 was spent reaching our
station and getting equipment up
where we were to stay which
is 5000 ft high, with wood
covered hills all around it
close by is coffee plantations.

May 4. 1927

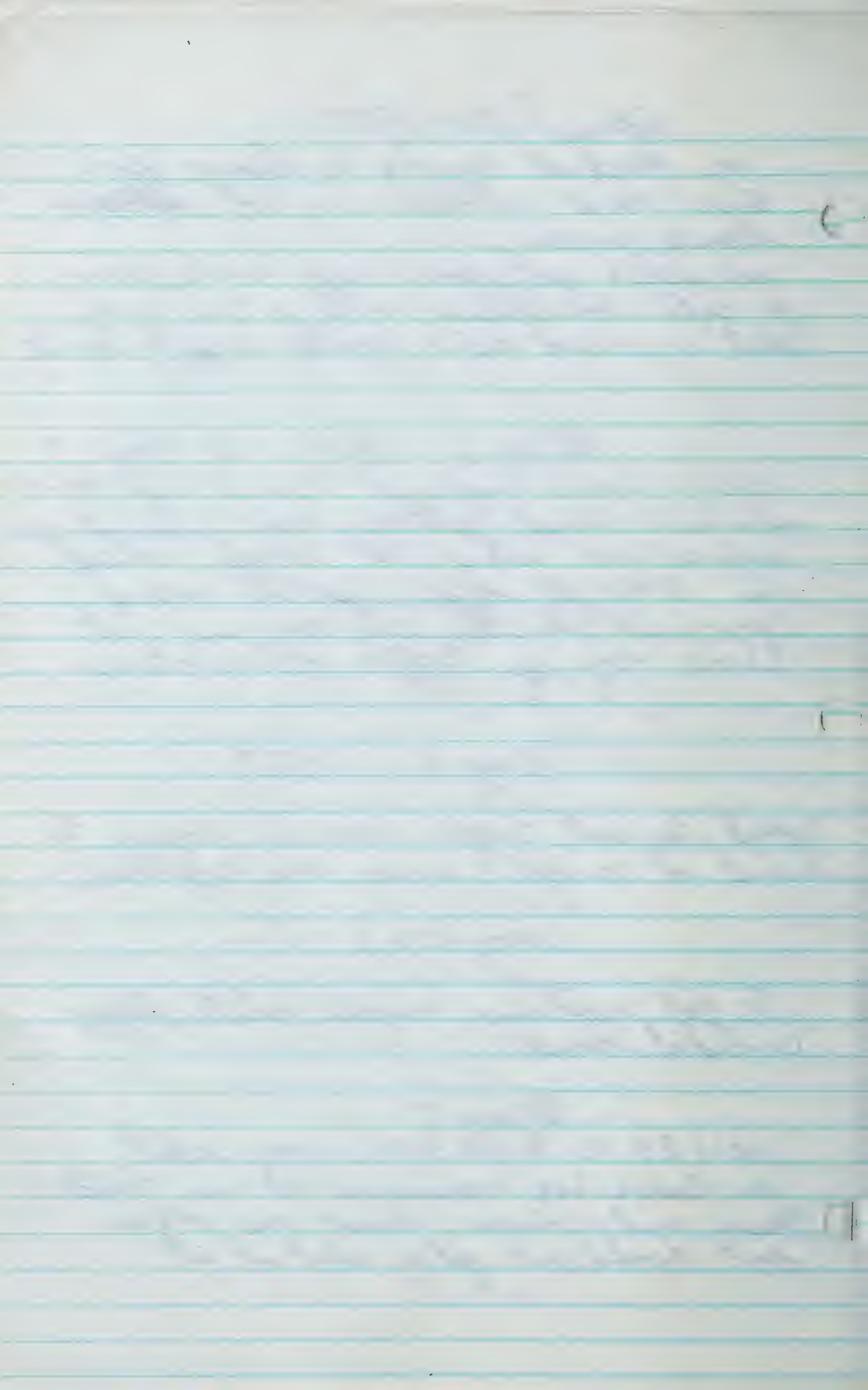
went to set traps was too foggy to
hunt at night saw one squirrel,

May 5 & 6

I got nothing nights still foggy
couldn't hunt

May 7

no 12903 & 12904 was shot
on Cerro de Naranguez mt in thick
trees and vines saw one other
but could not get a shot at it



May 8 1927

went to Volcano Santa and, on
top night still foggy could not
hunt

May 9/1927

No 12915-

was shot on Cerro Los Naranjos
mt in thick timber

May 10/1927

I took up traps and while doing
this I shot No 12926 in semi
humid forest, night still foggy

May 11, 1927

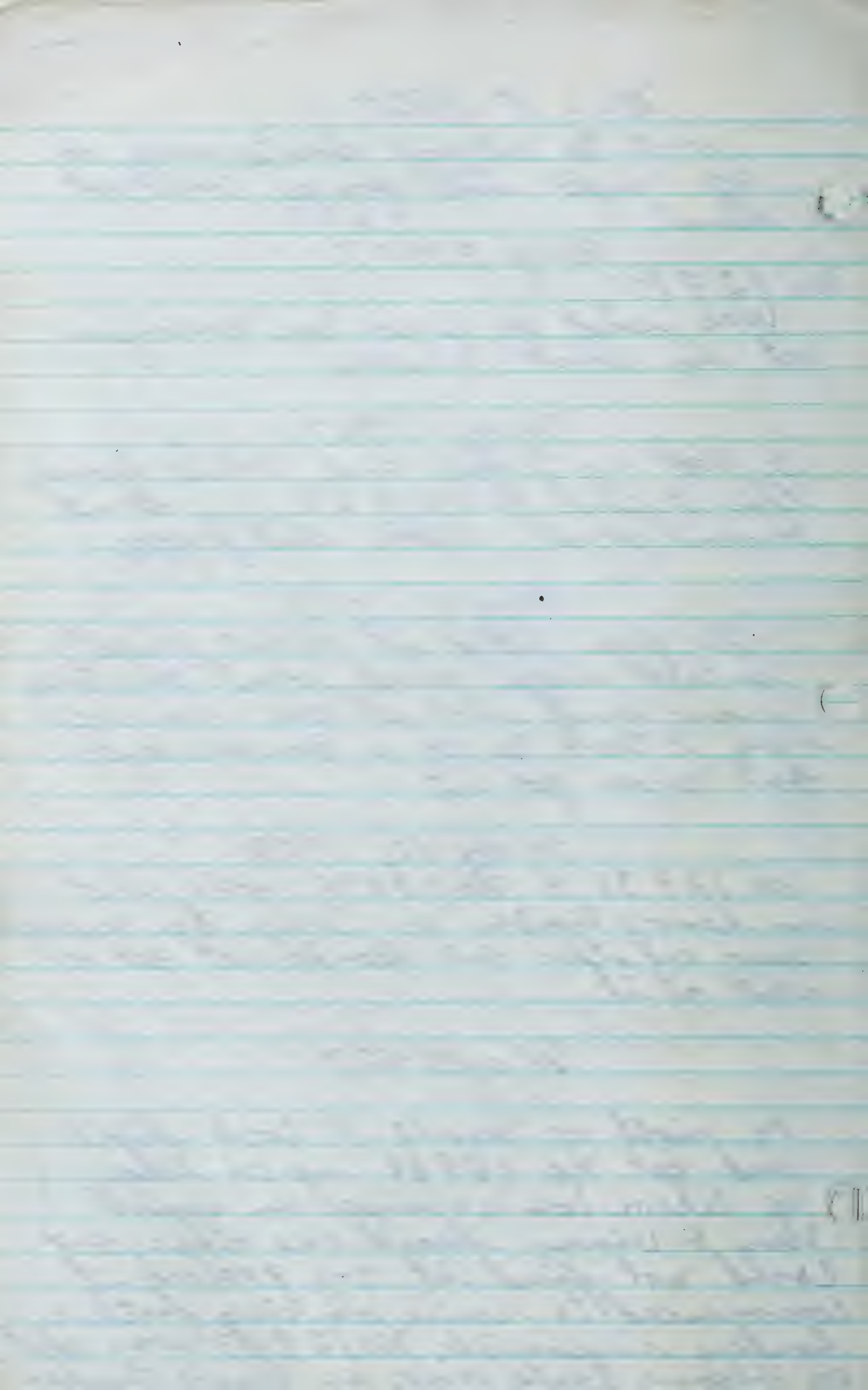
The fog lifted at about eight
so took light and went hunting
saw and shot at one pair of
eyes I took to be a *Basileuterus*
but never got it

May 12, 1927

No 12931 & No 12932 were shot
in heavy timber on Cerro Los Naranjos
saw one other but could not get a
shot at it

May 13/1927

on night of May 12 I took light
and got No 12944 up on edge
of Cerro Los Naranjos in small
trees & vines heard one other but
could not find it by 9 o'clock it
commenced to rain making further
hunting impossible, No 12943 was shot
on Volcano Santa and, in heavy timber



Reptiles

1927

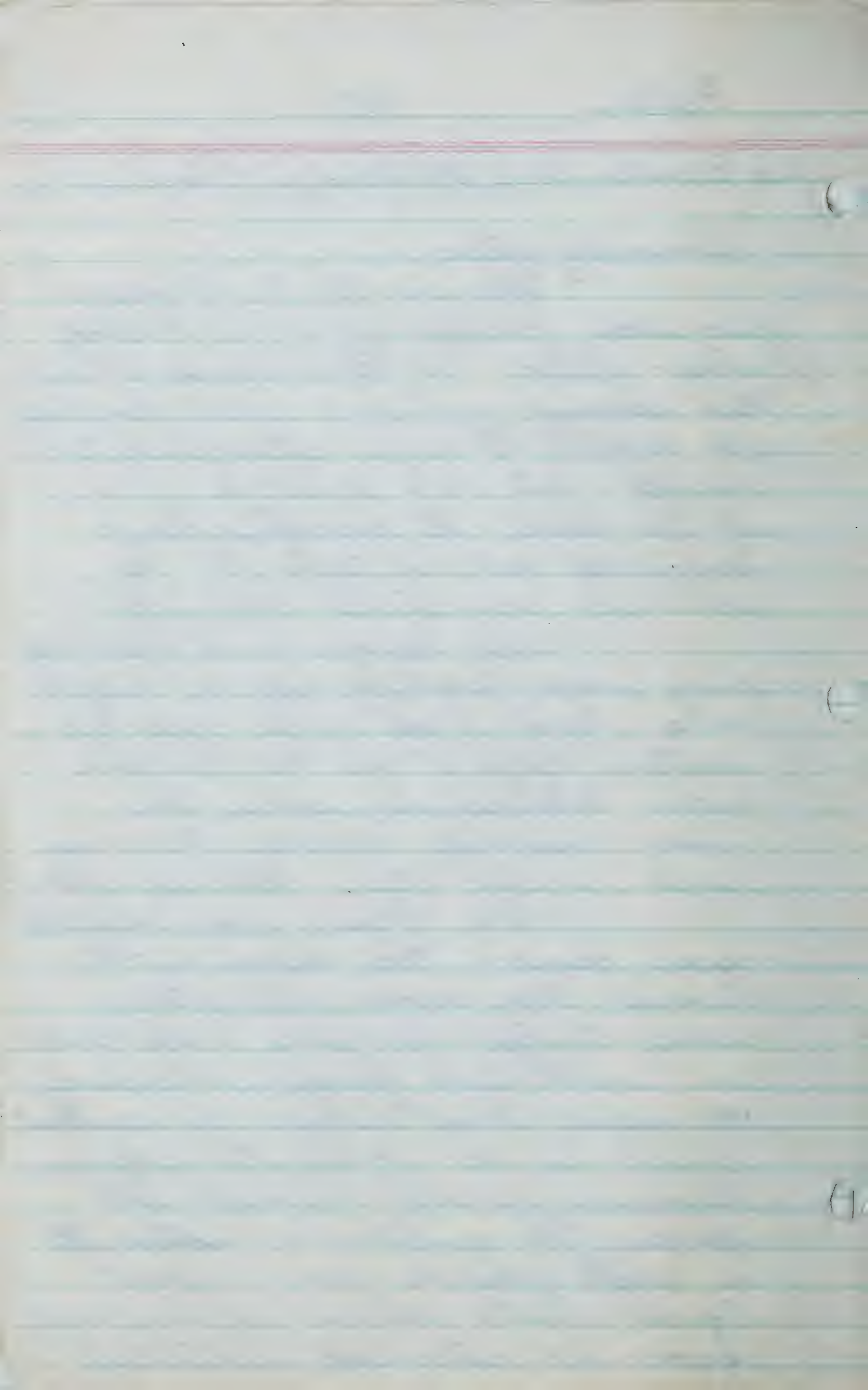
Los Esesmiles, Dept., Chalatenango, Salvador

Summary Notes:

The small light green frog was picked off of a barbed wire fence on the banks of the Rio Sempul while I was hunting at night. It never attempted to escape but only doubled up as if to hide its face when I reached out to take it. The altitude was about 6000 feet.

The larger and speckled frog was picked up one night on a large flat rock near the water's edge of the Rio Sempul near S. Fernando, where the river dashed between two high rock walled cliffs. Altitude 6000 ft.

The viper was killed near camp. One morning the house boy was out setting some traps for mice and came in with his finger bleeding. He said that when he reached back in one of the old gopher tunnels some animal bit him. He grabbed a hatchet and a shot pistol and went back with blood in his eyes. Soon he returned with the



Los Eses miles, Dept., Chalatenango, Salvador

viper. His finger bled well and swelled back past his knuckle. The fang apparently scratched him and perhaps dug in a little just back of the nail of his index finger. For a week he had a very sore hand. Altitude 6400 ft.

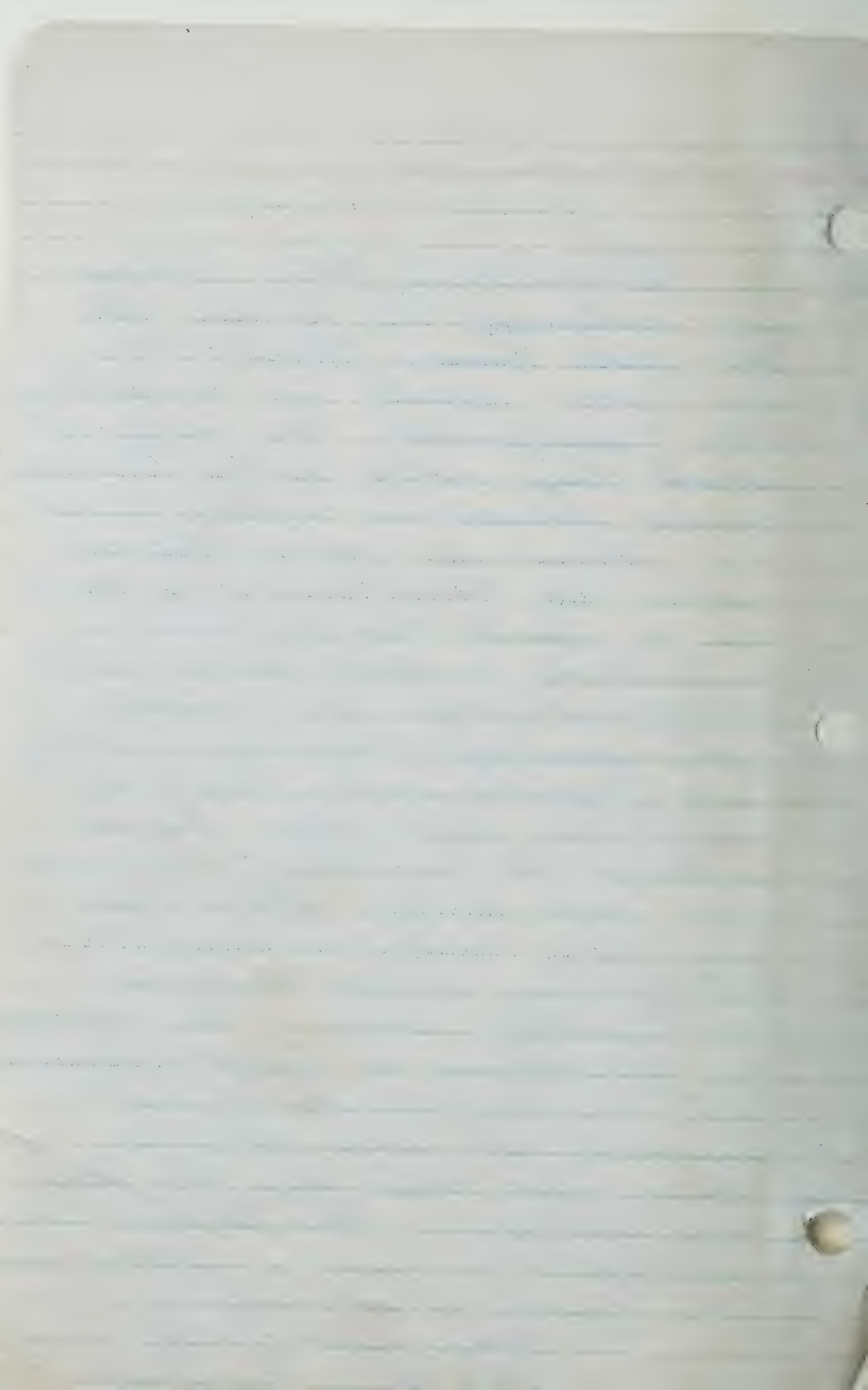
The little brown lizards which look something like *Eumeces* were seen both in the rain forest and on the plain in the corn fields and fern beds by me. The altitudes of the two taken were 7000 and 8000 ft.

The *Sceloporus* were taken on the sunny side of dead logs and oaks in the rain forest region at an altitude of 8000 ft. They were quite abundant. They were dark green when seen on the logs their color changing to dirty gray when they were shot. I saw one of this species among the pines at an altitude of 5000 feet.

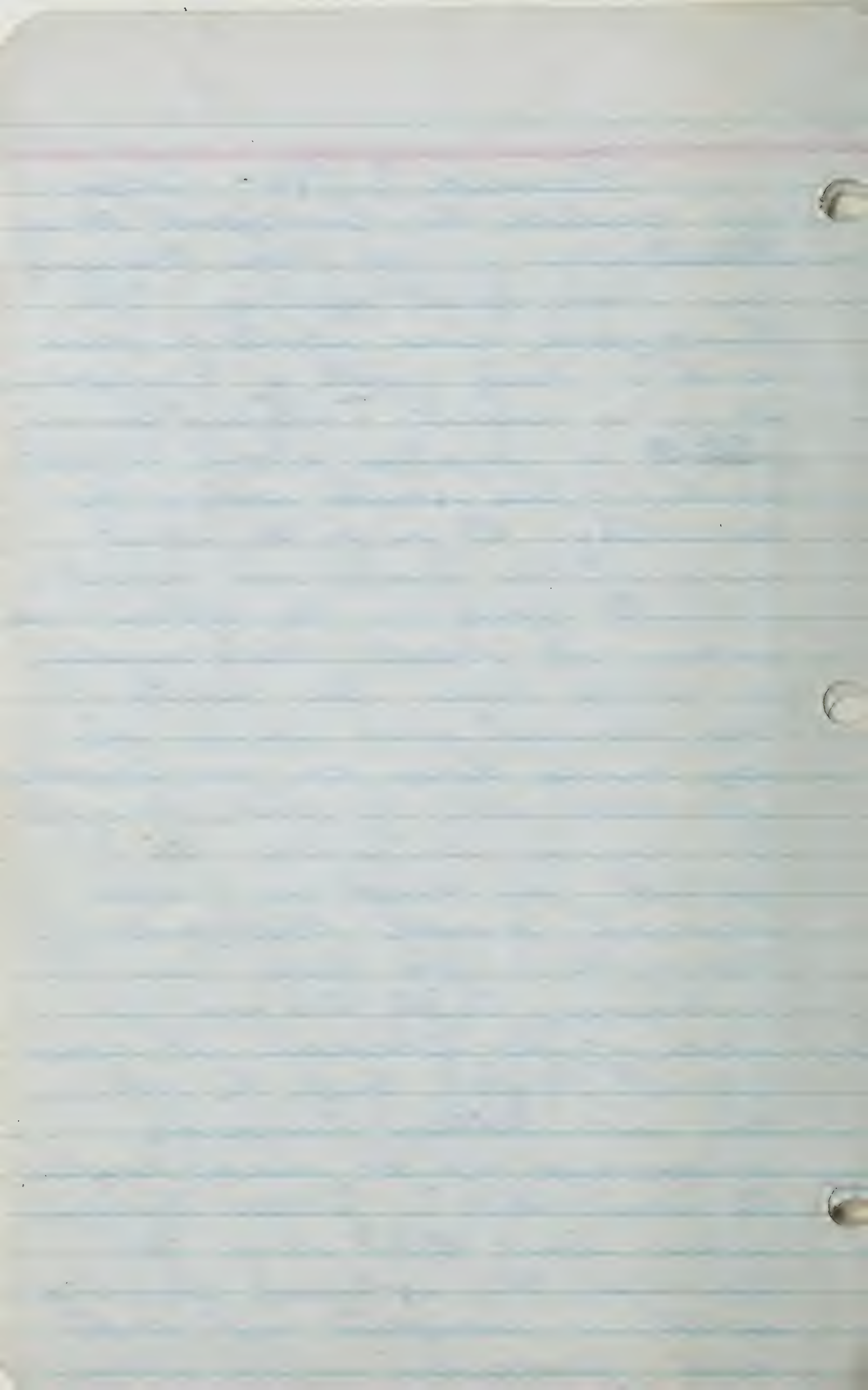
December 6, 1926 - Today we entered the field for the first time. Most of the day was spent in unpacking our equipment. We made a short trip down to the Carolina mine, which is mostly caved in, where we encountered some dog bats (*Peropteryx canina*) in a short tunnel and collected Nos. 12039, 12040, 12041, 12042, and 12043. The tunnel was perhaps twenty feet long, six to seven feet wide, and about five feet high. As we entered the mouth of the tunnel we saw these little bats fly from under a downward projecting ledge there to the farther end of the tunnel. By spreading a large mosquito net over the mouth of the tunnel we were able to drive five bats into the trap set for them. The tunnel was not dark, a minute inside and all objects were visible.

11 A.M.

Clear, few clouds about 7 A.M. 70° F. In shade.



December 7, 1926 - Today we visited the Graveyard mine, ~~from which~~ one of my boys brought me bats last spring. The Graveyard mine about a mile and a half north of Divisadero. It is a small T shaped tunnel ~~which~~ ^{and} is located about 50 feet south of the south side of the cemetery. It is on the west side of the trail and about 40 feet back in the cobon brush where it leads back under a steep hill. The mouth of the tunnel was caved in. By lying down on our stomachs we were able to slide through the narrow entrance. As I poked my head in I saw several small bats (probably *Myotis*) fly from near the entrance back toward the face of the tunnel. It was about 30 feet back to where the two lateral tunnels branched off at right angles to form the T. These tunnels were about 3 feet long. We blocked the exterior opening with a mosquito net and proceeded with flash-



lights, a butterfly net, and a sack to put the bats in. There were perhaps 30 vampires (*Hesmodus rotundus*) in the tunnels. We collected Nos. 12050, 12051, 12052, 12053, and 12054. Some of the mothers had young cling to them. I observed them only on the ventral side. These bats have a strong vitality and we found it very difficult to kill them by pressing in on their hearts. In the mine they hopped around like so many monkeys always trying to get out of sight in a crevice or behind a ledge. There were about 70 *Micronycteris*, and as best we could discover only one escaped. We collected Nos. 12044, 12045, 12046, 12047, 12048, and 12049. They hanged head down ~~and~~ from the roof of the tunnel, their sharp claws clinging to projecting rocks and roots. The ears and ~~not~~ ~~leaves~~ ~~of~~ ~~these~~ faces of these little bats twitched nervously when the light

was directed on them. They were easily caught in the butterfly net. I saw one *Glossophaga* in the tunnel. *MicroNycteris* stomachs examined were empty. The *Desmodus* stomachs were not examined. We saw two rats ~~or~~ *Uromys* in the mine and was able to collect one, No. 12055♂, it was found in a crevice in the rocks. The other was first seen sitting on a narrow ledge.

Clear day, cloudy at dusk. 2 P.M. - 84° F. in shade.

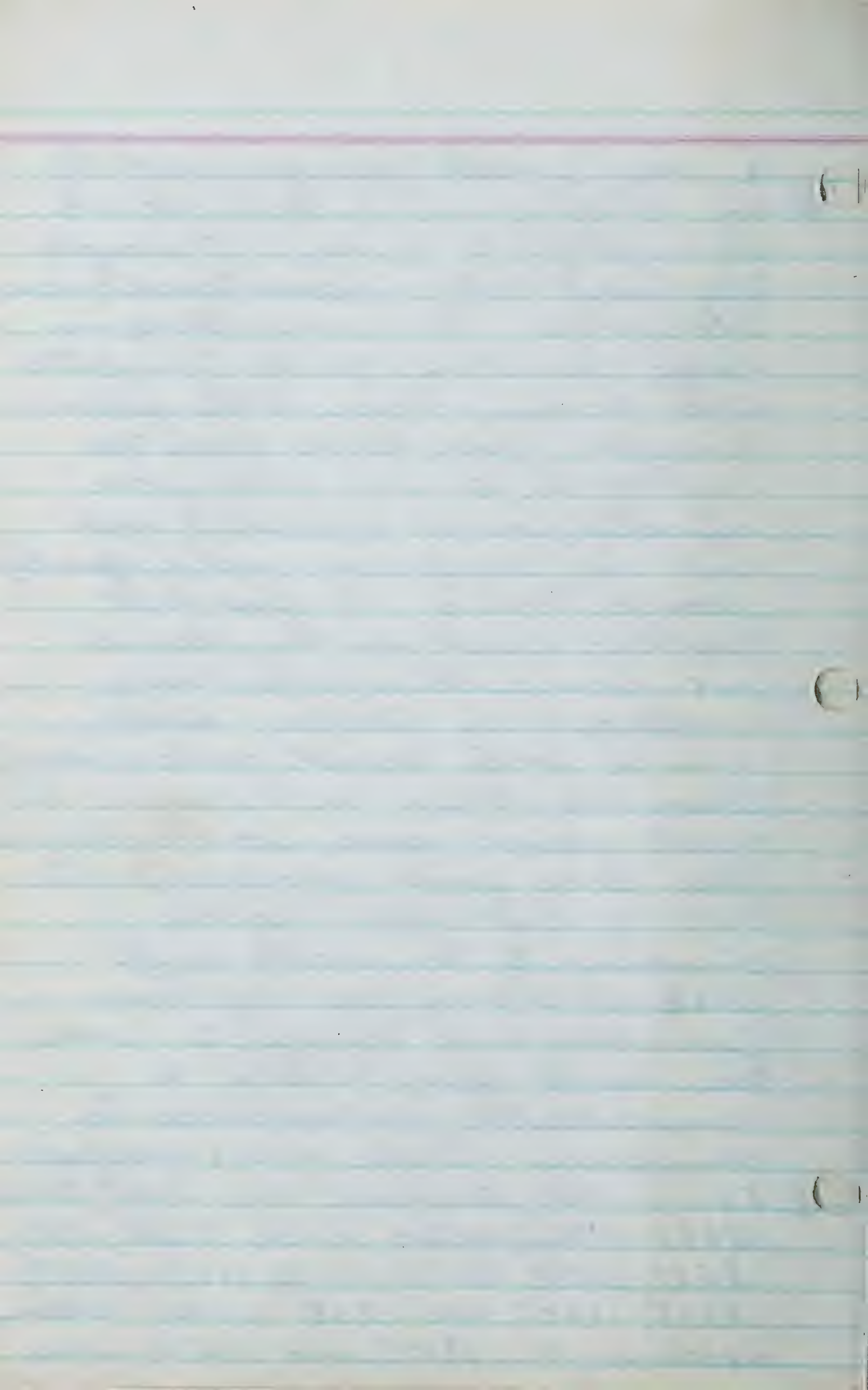
It might be proper to mention here that no *Pteronotus davyi* or *Chilonycteris personata*? were seen in the mine tunnel, and it was ~~from~~ in this place that one of my boys found them so abundantly last spring. *Chilonycteris rubiginosa* were also found in the tunnel at that time. I did not visit the Graveyard mine last spring.



December 8, 1926 - We entered the San Jose mine which is located on the south bank of the Rio Seco and about one half of a mile down the river from the cemetery. It is perhaps one hundred yards down stream from ~~the~~ ~~where~~ where the trail crosses the river; the trail leads to San Carlos. There were many ~~low~~ trees along the bank at this place, but it was open beneath, therefore we had no trouble locating the mouth of the tunnel. As usual with mines in the Divisadero region, the mouth had caved in, there making a 20 foot wall with a rocky face above the opening of the mine. On this wall I saw a little black bat which was probably *Saccopteryx*. It flitted away before I could shoot it. When I flashed my light into the tunnel many small bats, *Glossophaga*, shot out past me and were lost in the trees. There were two openings into the tunnel. One had water in it and we could not enter there. The other was



a very small opening and by
by sliding in feet first we
were able to squeeze through.
The first bats encountered were
Glossophaga. They were there in
large numbers. Nos. 12057, and 12061
were taken. These little fellows
hanged head down from the
roof of the tunnel and were
usually found separately and
not in clumps as we frequently
found *Carollia*. A few feet
farther back in the tunnel
we found *Glossophaga* being
replaced by *Carollia*. These
genera were found more commonly
than the others in the mine. The
next genus seen was *Phyllostomus*.
They were quite gregarious like
Carollia, but their habits of
clinging to the walls and
tracing themselves by their
forearms and trying to wade
the light gave them a
remarkable resemblance to
vampires. There were perhaps
50 in the tunnel. Nos. 12058, 12060,
12062, 12063, 12064, 12065, 12069, 12071,
12072, 12073, 12074, 12075, 12076, 12077,
12078, 12080, and 12081 were taken.
Carollias, Nos. 12059, and 12079 were



taken. I saw only one Mormoops, No. 12056, near the mouth of the tunnel. Back near the face of the tunnel we found many *Chilonycteris rubiginosa*, a representative No. 12066 was taken. One half of a mile farther down the Rio Sico George D. Stinton saw several of this species hanging under a shady clump of trees. Nos. 12067 and 12068 were shot by him.

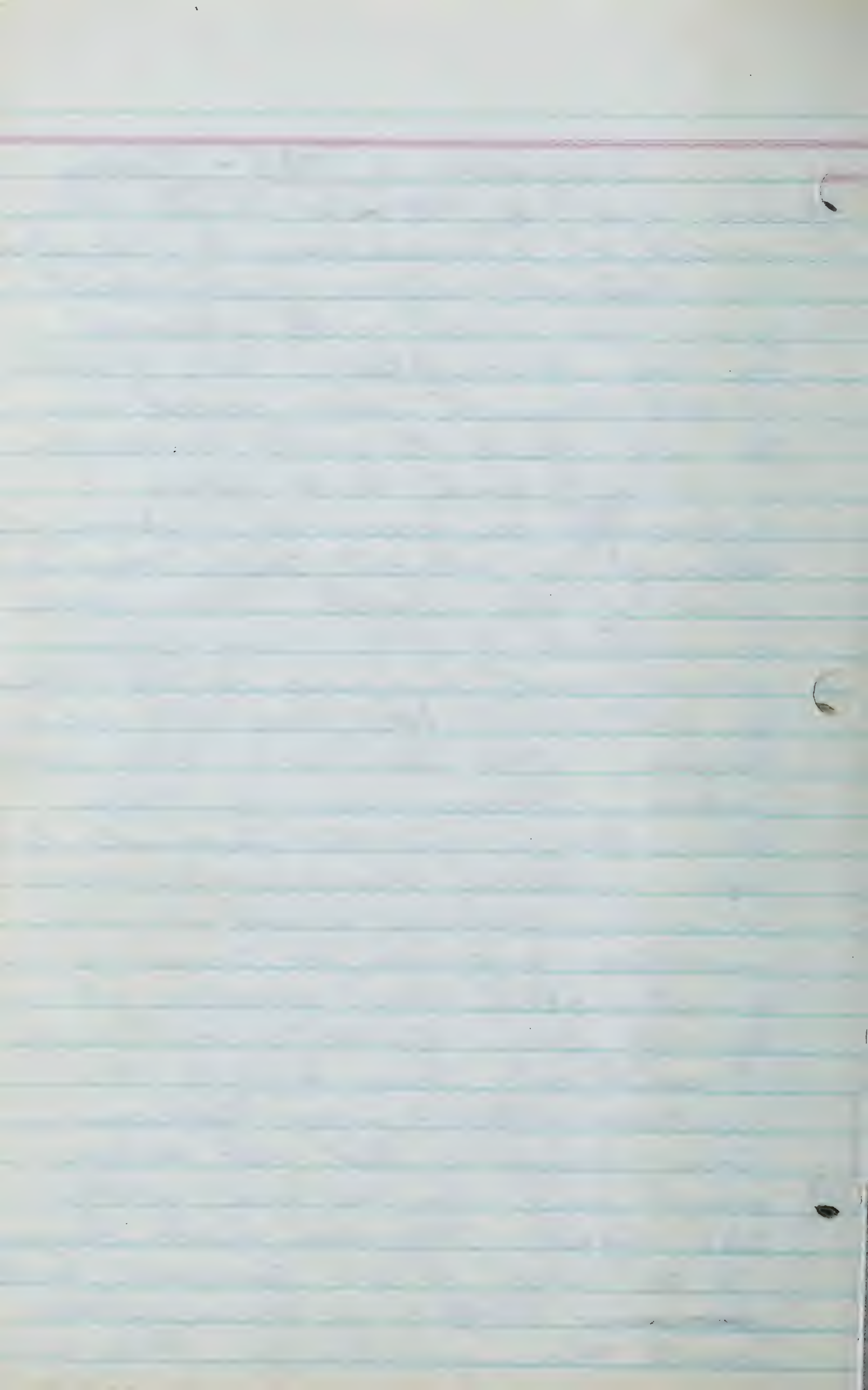
Clear day. 7 A.M. - 72° F. in shade. 12 N. - 90° F. in shade. -

December 9, 1926 - Most of the day was spent in camp. Toward evening we went over to the old furnaces in the ore plant where I found many *Peropteryx canina* last year. I found these little bats more abundantly in the partially lighted furnaces. By stretching a mosquito net over the door of one of the furnaces we caught 139 bats. They all were one species, *Peropteryx canina*.

Clear day. 7 A.M. - 72° F.
12 N. - 90° F. in shade. 12 N. - 101° F. in sun.



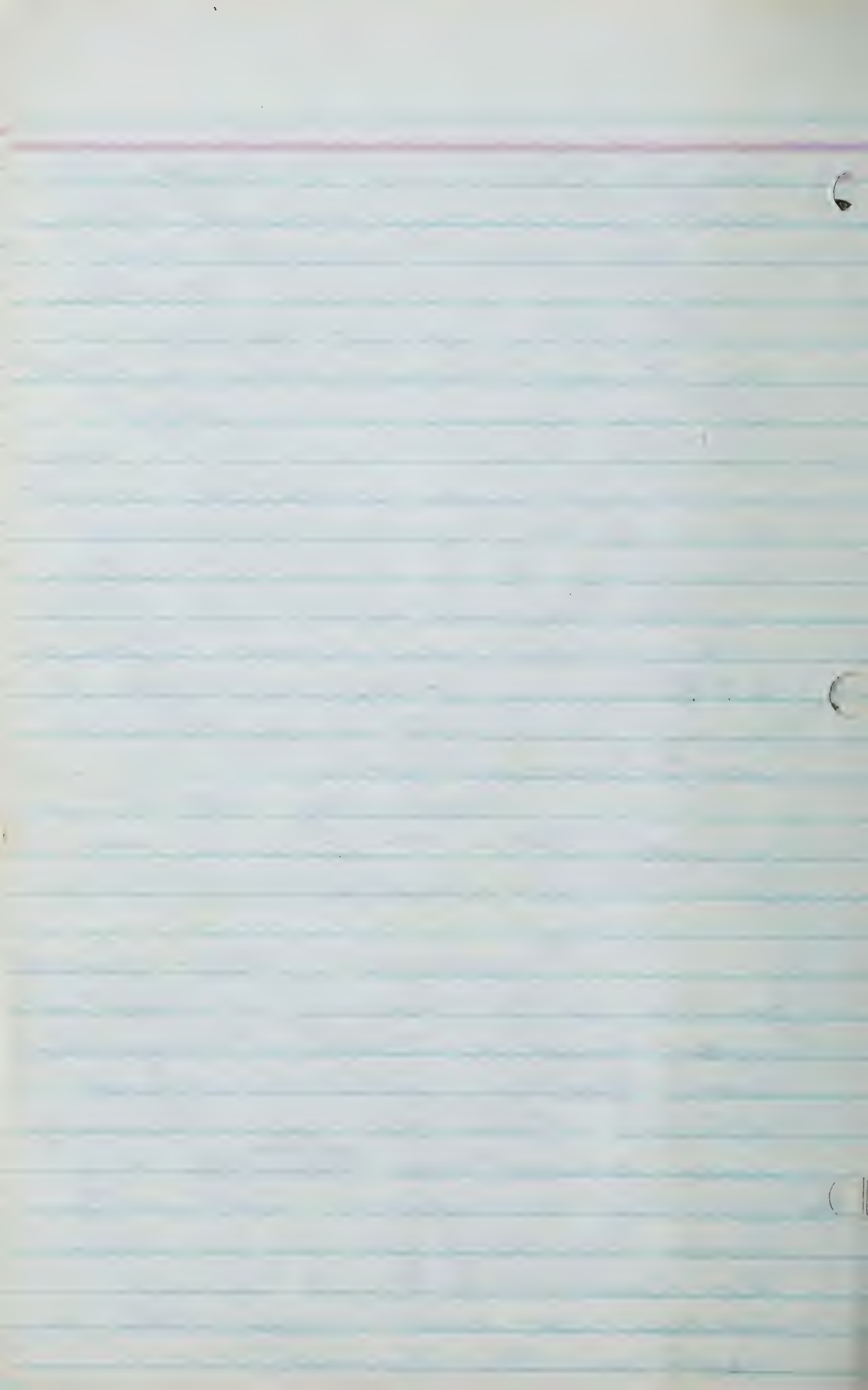
December 10, 1926 - Today we visited Monte Cristo mine west of Divisadero. I described the tunnel rather fully last year so shall not enlarge on my description. The mouth of the tunnel was caved in so we had to enter through a shaft, and had some difficulty in gaining a passage through a small hole on one side of the shaft. There were hundreds of *Glossophaga* flying about and clinging to the rocks. Nos. 12087, 12088, 12089, and 12091 were taken. One *Carollia*, No. 12085, was taken. There were perhaps three dozen in the tunnel. I saw several vampires, *Desmodus rotundus*, dodging about behind wooden supports for the mine. I estimated their number at twenty four. No. 12086 was taken. I saw only three *Hipphylla*. Nos. 12083 and 12084 were taken. This vampire did not dodge about and try to hide from the light. I found them clinging to the roof of the tunnel and ~~pressing~~ placing themselves with their forearms. They were



easily taken in a butterfly net, I always found them in the main tunnel and never in laterals. Another interesting genus found in the tunnel was *Natalus*, No. 12092. It was found in a short lateral with many *Glossophaga* where it was located about two feet from the floor and clinging to a tiny projection on the tunnel wall. Most of the other bats were above. I saw a ~~bat~~ *Tylomys* as it hurried behind some partially decayed and water soaked poles.

Clear day. 7 A.M. - 71°F. in shade. 7 A.M. - 79°F. in sun. —
12 N - 91°F. in shade - 12 N. - 108°F. in sun.

December 11, 1926 - Several mines in the vicinity of Monte Cristo were visited to-day - Margarito, Santa Barbara, Santa Marie, and others. Only one genus, *Glossophaga*, was found, and ^{they were} usually very few in numbers. The water was too deep for us to enter the North Monte Cristo tunnel, however we saw many bats far back in the tunnel.



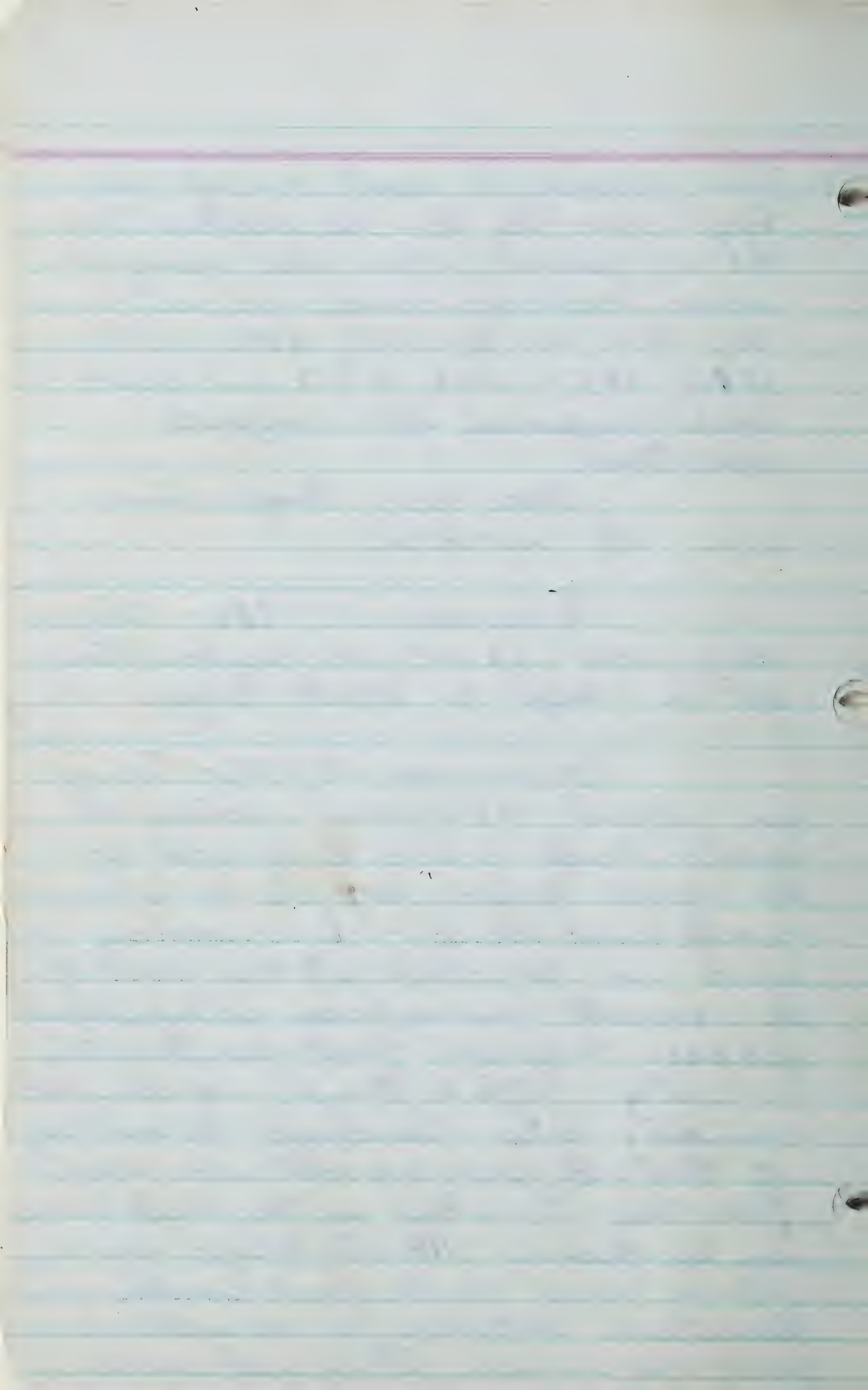
This evening I sent one of my boys over to the old boiler in the ore plant, where he caught some *Peropteryx canina* for me.

Nos. 12095, 12096, 12097, 12098, 12099, 12100, 12101, 12102, 12103, and 12104 were prepared for complete skeletons.

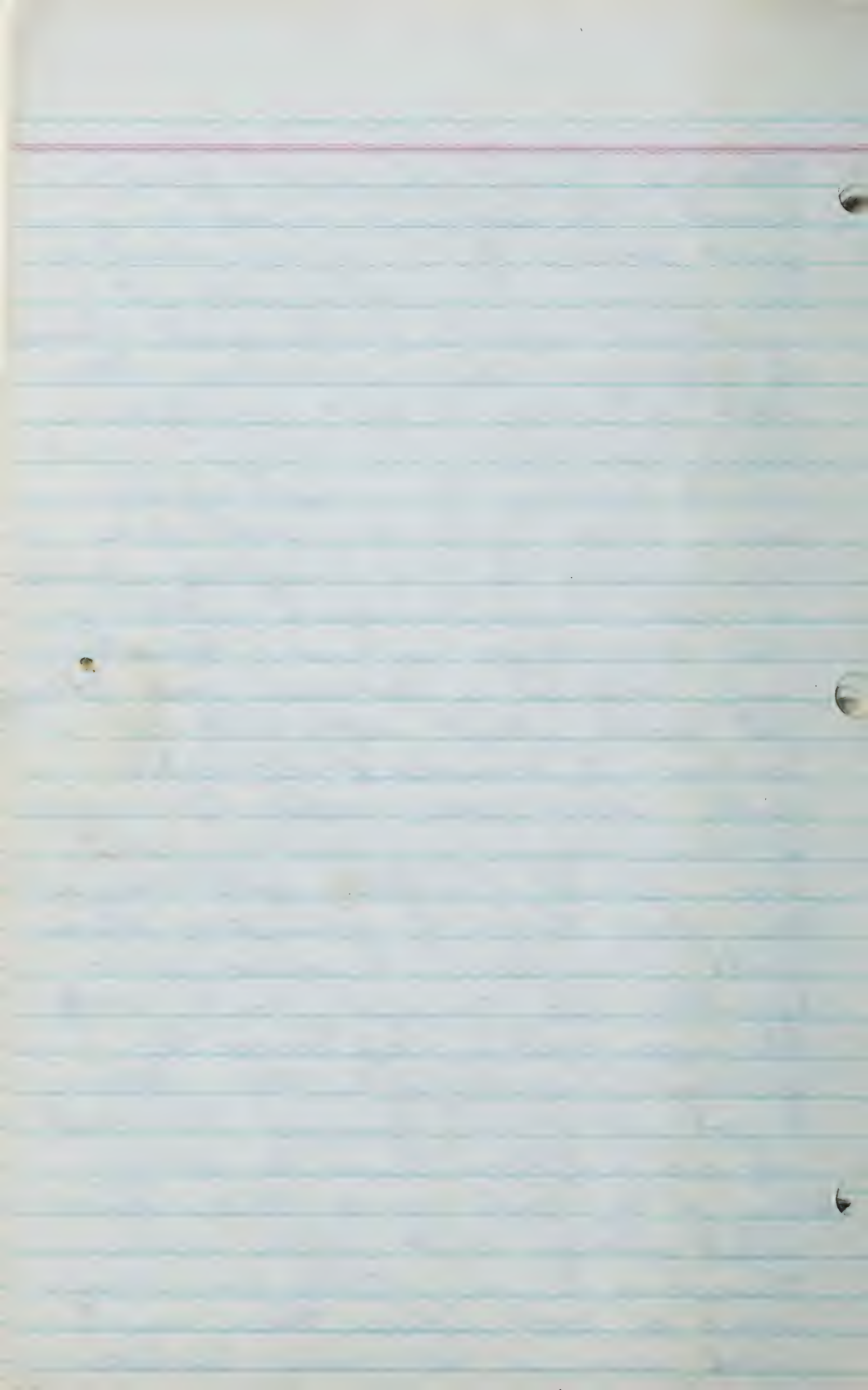
Clear day. Temperature was not recorded.

December 12, 1926 - The day was spent in preparation for a trip to Monte Mayor.

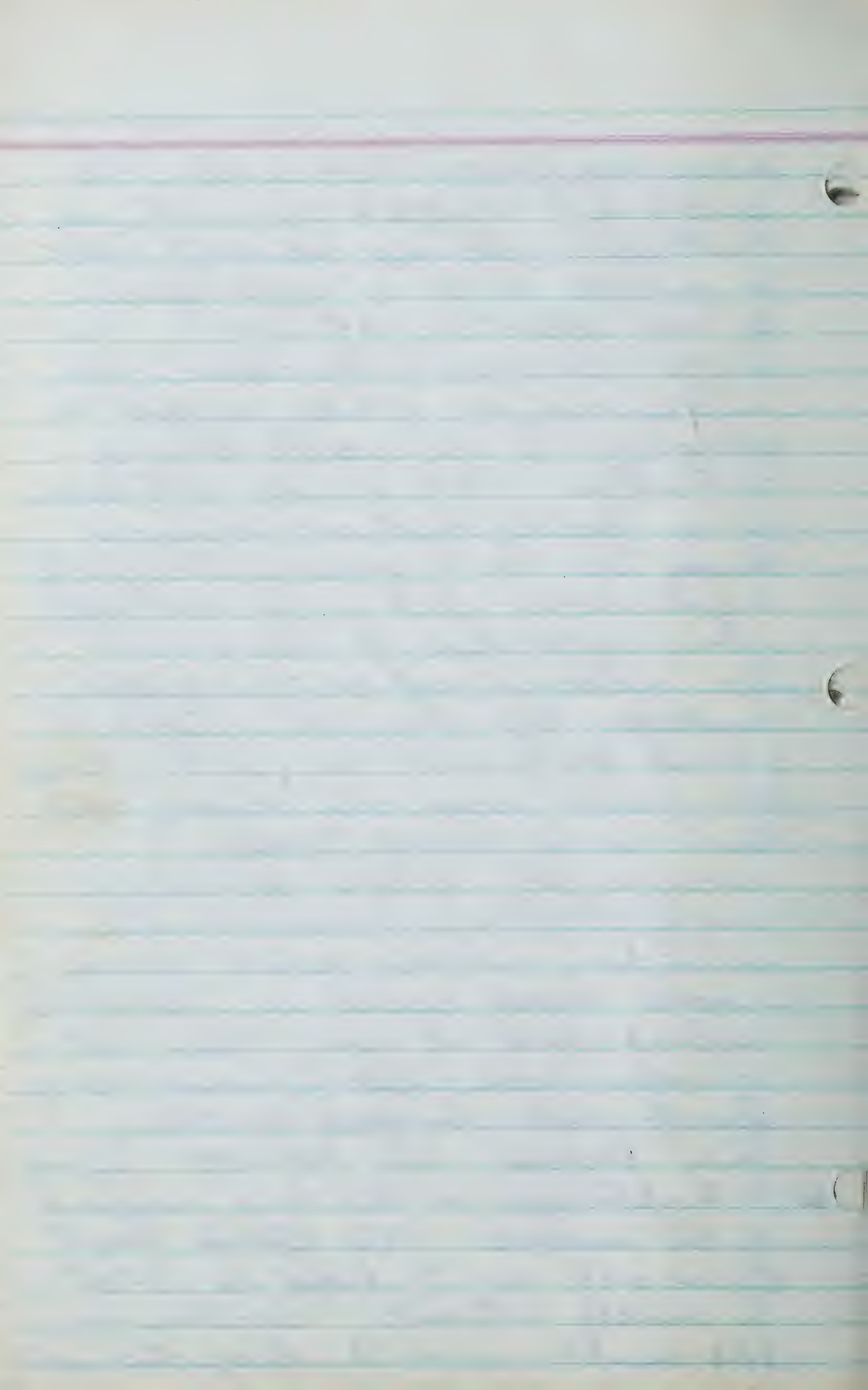
December 13, 1926 - Today we spent $4\frac{1}{2}$ hours riding by mule back from Divisadero to Monte Mayor, which is to the north and east of Divisadero and is located at the foot of a small mountain range that passes through that part of the country. Monte Mayor is an old mining site. Through the courtesy of Mr. R. Swanquist we were invited to stay in the best house in the place. Monte Mayor river flows in a north and south direction between the mountains and our house. It is not more



than a hundred yards from the house. Montanita mine is just across the river in front of the house. This afternoon I entered the tunnels and found *Glossophaga* and one *Carollia*. One bat, *Glossophaga* No. 12109, was taken. Later in the afternoon I went about one-half of a mile up the river and up on the side of a mountain to the Tempisque mine. Several tunnels had nothing but *Glossophaga* in them. Finally we entered a tunnel and followed it back about sixty feet to where it branched off to the left. There were many *Glossophaga* in this tunnel. I saw one white one. About fourteen feet beyond the left turn I found a stroke full of water. I could go no farther so turned back. On the way out I captured the albino *Glossophaga*, No. 12111. When I got out of the tunnel I looked up in the low trees to see if any of the bats were there that had flown out of the mine. Clinging to one of the low limbs was a bat larger than any I had seen in the mine. He was



hanging by one foot and was asleep. I slipped up with my butterfly net and caught him. He proved to be a new species to my collection, *Artibeus*, No. 12100. At once I became more interested in what might be clinging to the walls beyond the stoke. My guide cut two long poles and we dragged them in. In crossing the stoke I got both feet wet, but that was expected, I was only too glad to not be thoroughly soaked. The tunnel extended about sixty feet beyond the stoke. The place was very damp but there were many bats. I recognized, besides *Glossophaga*, many *Carollia* and one *Desmodus rotundus*. At one point many rocks had caved in from the ceiling and it was there, out of my reach that I saw many large bats clumped together. They looked like *Artibeus* which I captured in the tree in front of the tunnel. My flash light gave out so I had to beat a hasty retreat. Earlier in the afternoon I dispatched



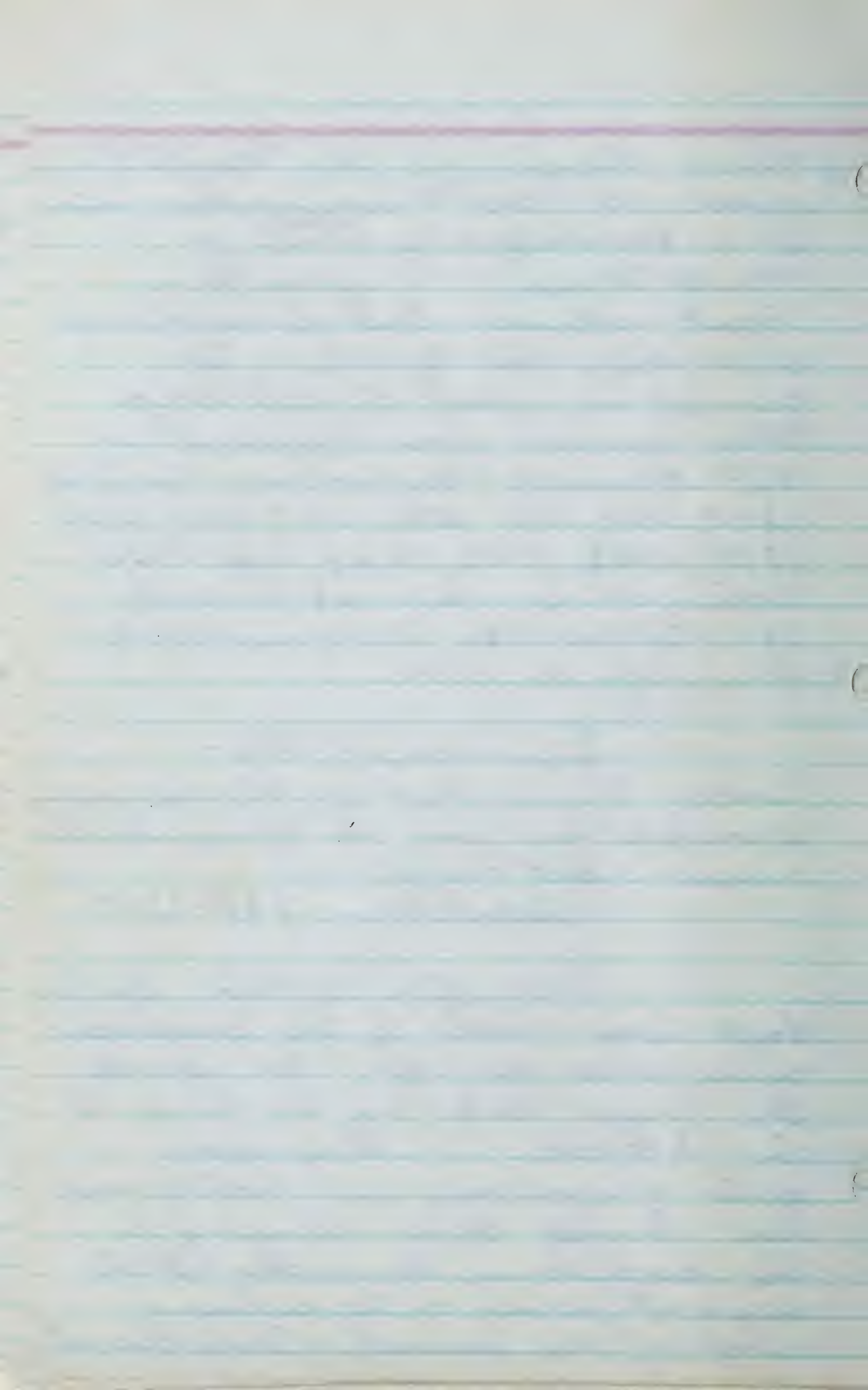
three leagues up the Monte Mayor river to the Misericordia mine. It is two and one half miles north of Monte Mayor. I was there last spring but found only *Glossophaga* and *Carollia*. The tunnel is about 50 feet long. They found four genera in the tunnel. *Phyllostomus* Nos. 12112, 12113, 12114, 12115, 12116, 12117, 12118, 12120, 12121, 12122, 12123, 12124, and 12125. *Chilonycteris rubiginosa* No. 12119. *Carollia* Nos. 12126, 12127, and 12128. *Glossophaga*, No. 12129.

December 14, 1926 -

Today I worked on the specimens brought in from the Misericordia mine last night.

Clear day. 7 A.M. - 70°F.

December, 15, 1926 - Another trip was made to the Tempisque mine this morning. We found the large bats in the mine to be *Artibeus*. They were quite gregarious in habits and we found them clinging to the pockets in the rocks at the highest points on the ceiling or roof of the tunnel. They braced



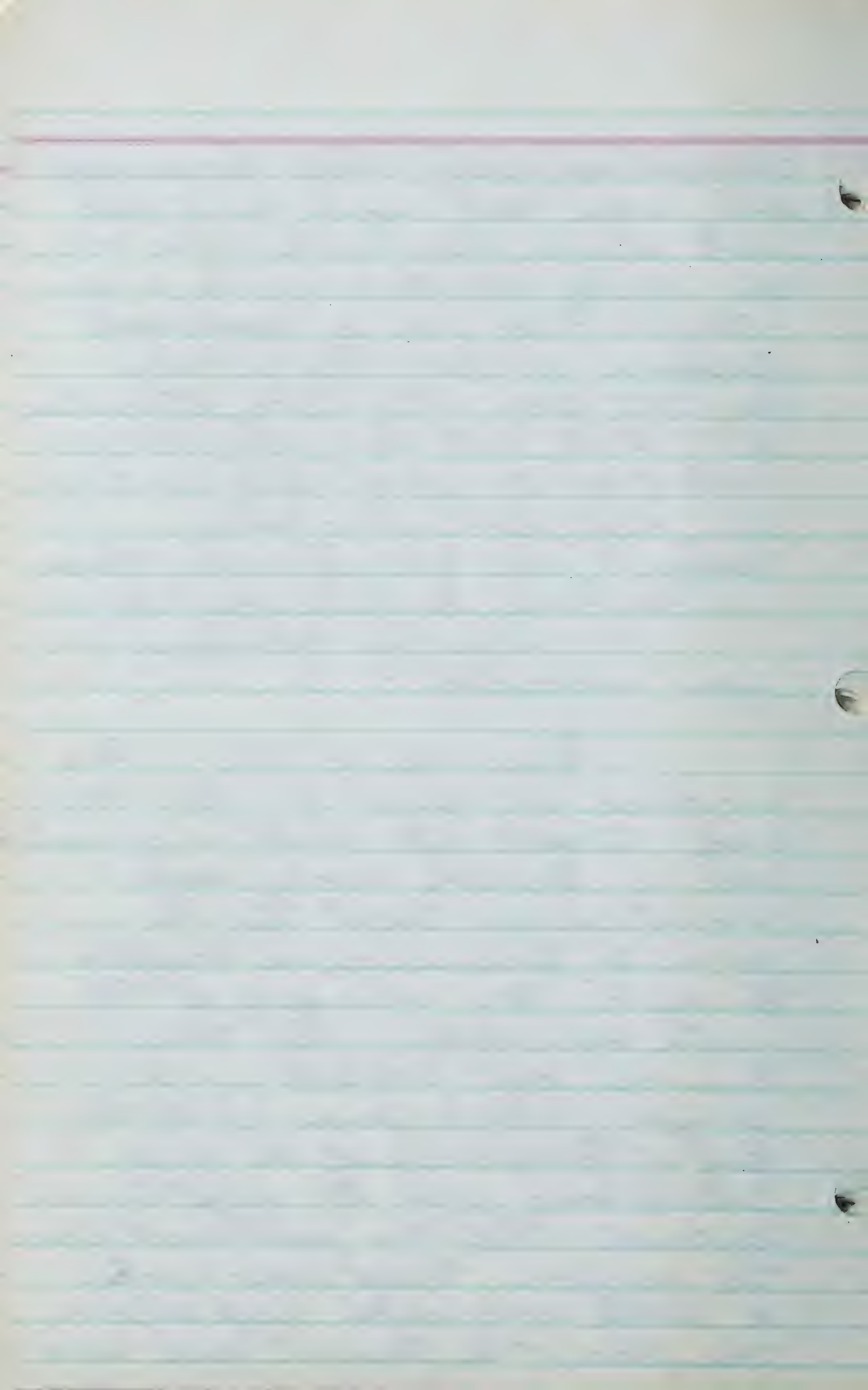
themselves with their forearms, but were not agile and did not climb here and there over the rocky surface as *Desmodus rotundus* nor in a semi-agile fashion as does *Phyllostomys*.

Nos. 12131, 12132, 12133, 12134, 12135, 12136, 12137, 12138, 12139, 12140, 12141, 12142, 12143, 12144, 12145, 12146, 12147, 12148, 12149, 12150, 12151, 12152, 12153 were taken.

Today I saw two *Desmodus rotundus* in the mine, No. 12130 was taken.

Clear Day. No temperature was recorded.

December 16, 1926 - This morning we arose at four o'clock and struck out north and east over a terrible rocky and mountainous trail to the Jimerito, Valanciana, and Farallon tunnels. We returned at 8 A.M. with our bats. All three tunnels are located in a canyon which faces off to the Bay of Fonsacia and La Union. Valanciana was the first tunnel entered. It is the farthest down the canyon. There was water a little over ankle deep all over the floor of the tunnel and more



dripped and in some places poured from the ceiling or roof of the tunnel. Only *Glossophaga* were seen in the tunnel. No specimens were taken. Jimerito

the next up the canyon led straight back for about forty feet and then branched off to the left.

In the front ^{part} of the tunnel water came nearly to the tops of our boots. In this part of the tunnel

I saw *Glossophaga* and *Desmodus rotundus*. Where the tunnel turned to the left much of the ceiling had caved in apparently exposing a cavity above. This made a room about 20 feet long 14 feet wide and 15 feet high. The highest ~~pockets~~ pockets in the rocks fairly squirmed with *Artibeus*

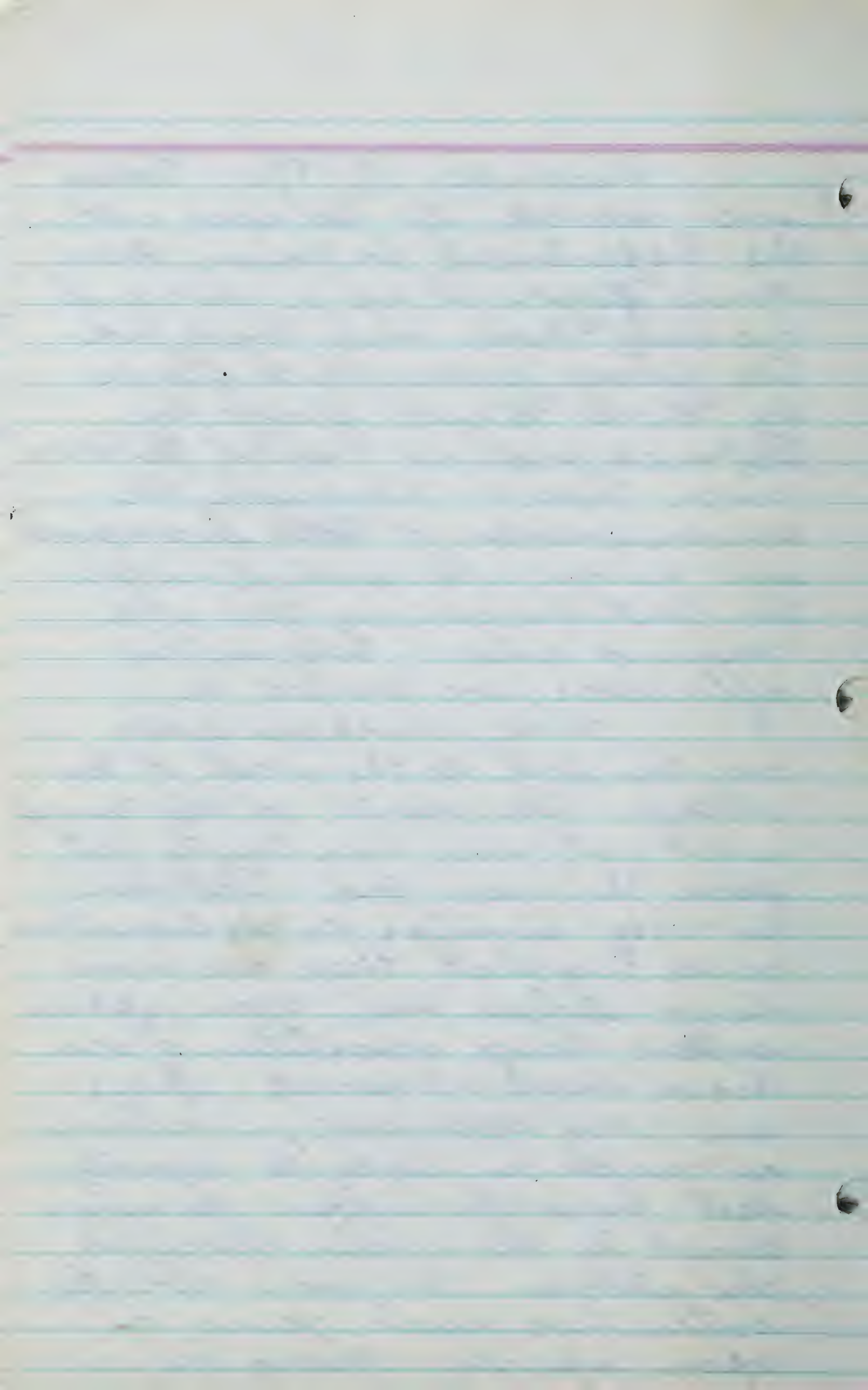
Nos. 12154 to 12160 inclusive, and 12162 to 12165 inclusive were taken.

Desmodus rotundus No. 12161 was taken.

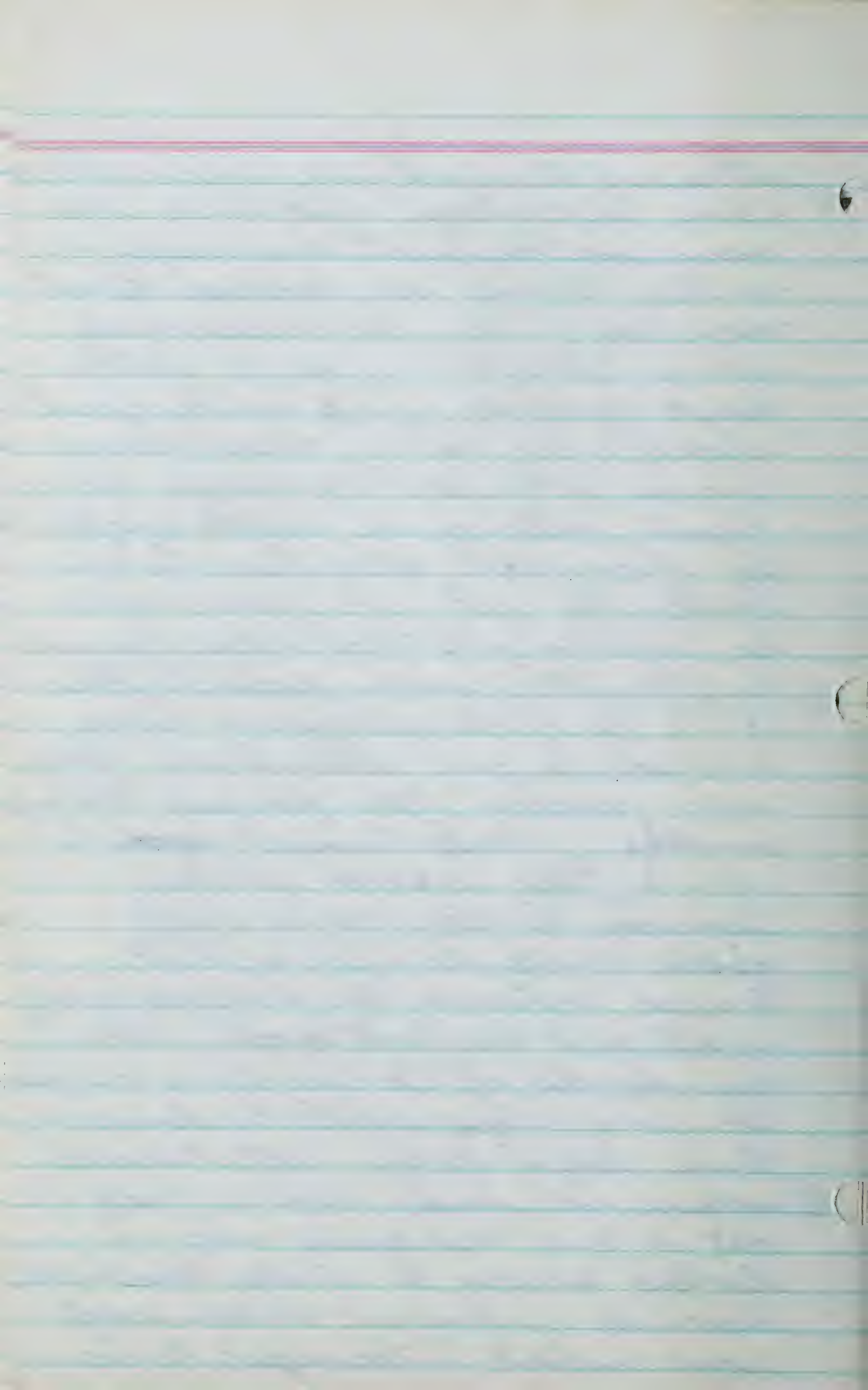
At the ~~Garallon~~ tunnel we found only *Glossophaga*, Nos. 12166 to 12168 inclusive were taken.

Cloudy. 1 P.M. 80°F.
in shade.

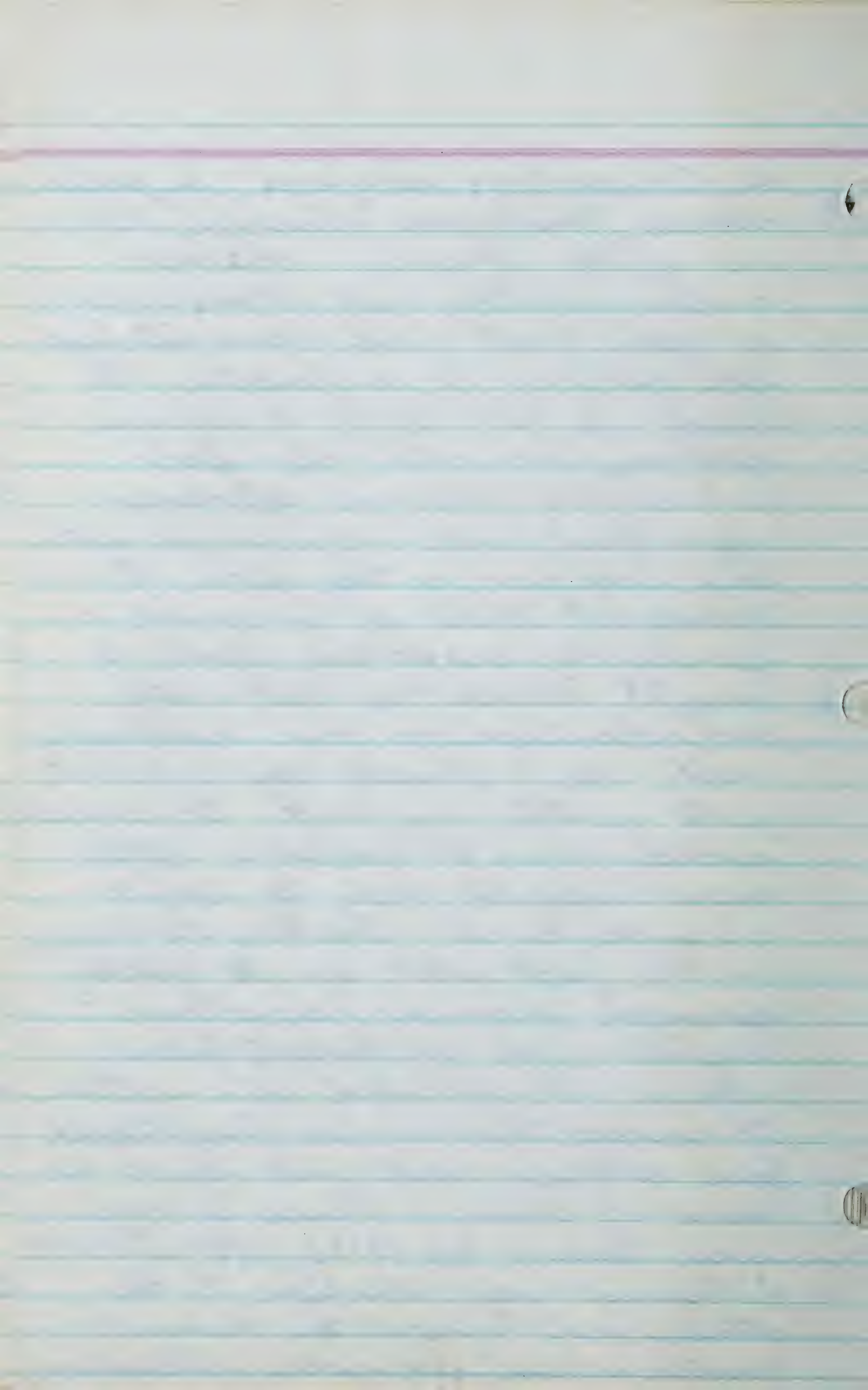
December 17, 1926 - Today we moved to Tabanco in the Department La Union. From Monte Mayor it is a two and one half hour mule back ride. The same river that flows by Monte Mayor flows by Tabanco and is called Tabanco river there. Through the arrangements of Mr. Swanquist we were furnished with the best house in this old mining site. Late in the afternoon we visited the mine which was down over the hill to the west of the village. The mouth of the tunnel was not more than fifty feet from the river bed. The mine is very similar to the Encuentro mine in that there are many large stokes and open spaces where large quantities of ore have been removed; these are very extensive, sometimes as much as sixty to seventy feet from the upper openings down to the water level in the stokes. We were able to enter two such veins or open spaces. Along the



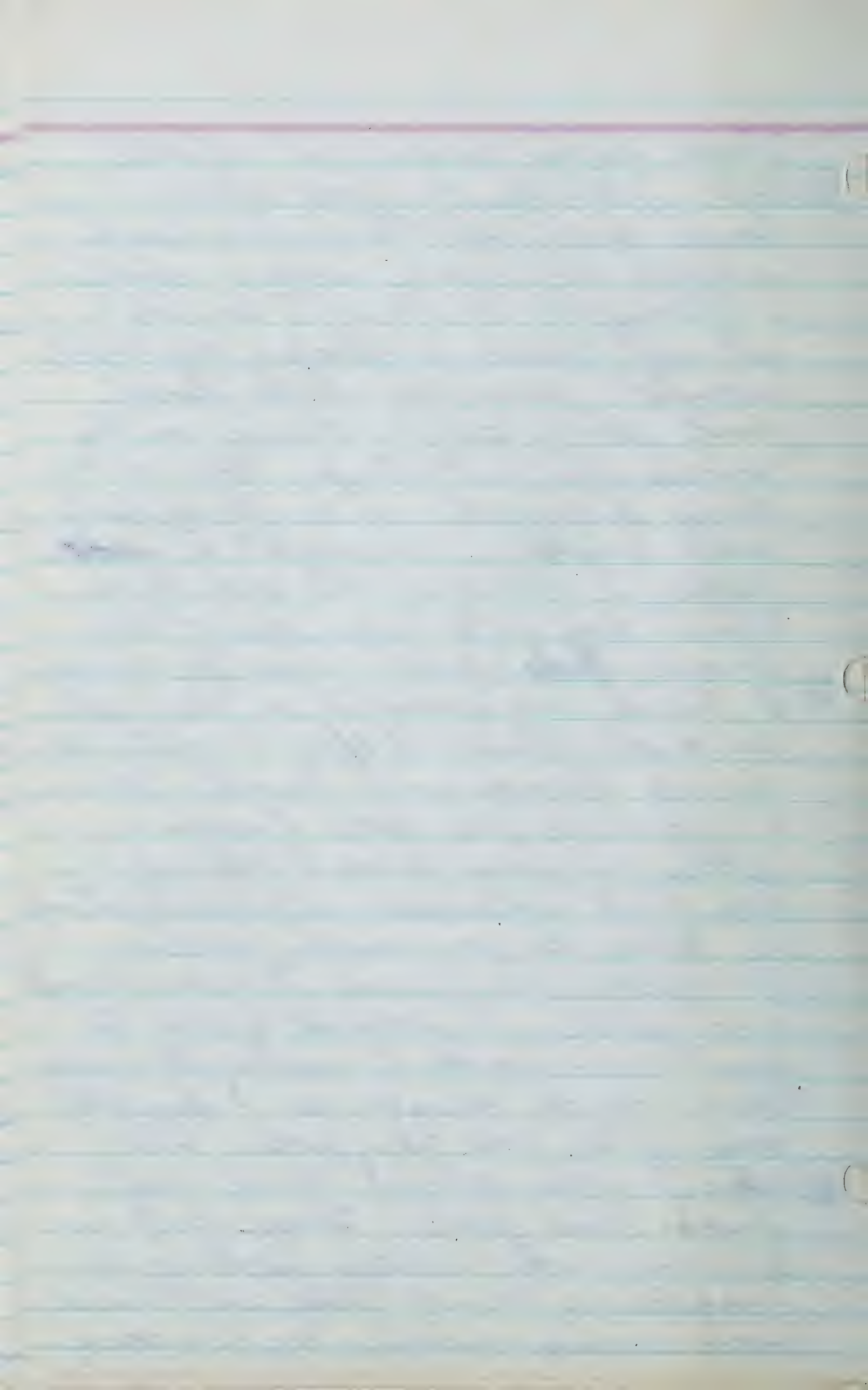
entrance tunnel we encountered some *Glossophaga* and there were many in the first ore cavity or vein. When we looked about more carefully we discovered some *Atibet* in a little dark pocket, for in the first stoke or ore cavity there were many exterior openings above thus letting in much light. By fixing an extension to our butterfly net we were able to nearly all that were clinging to the little rocky pocket. Nos. 12179 to 12182 inclusive were added to our collection. They were males. We passed through another short tunnel ~~and~~ to reach the second stoke. Clinging to the walls high above and to poles, that braced between the overhanging wall and the foot wall, were hundreds of *Chilonycteris rubiginosa*. It was impossible to drive them down to the little tunnel where we had made a trap out of our mosquito net. I looked across a stoke that led down to unknown depths and saw what I thought to be



a *Chilonycteris rubiginosa*, a partial albino, that was clinging to one of the braces. Below and across the deep stoke was a pole that had been notched for footing for a ladder. It lead to a shelf of secure footing beneath the pole where the desired specimen squeaked and squirmed with his fellows on the pole. I thought that if I could possibly cross the stoke I might reach the bat with the intention on our butterfly net. So I tried the notched pole with my foot. It seemed solid, then I added a little more weight only to see it crumble and shatter to pieces on the foot wall as it quickly passed from the rays of our lights into darkness below where it splashed into water. Of course this noise frightened our albino and we saw no more of him. Three *Chilonycteris* were taken, Nos, 12183, 12184, and 12185. I turned my attention to the other side of the tunnel mouth where we were standing.



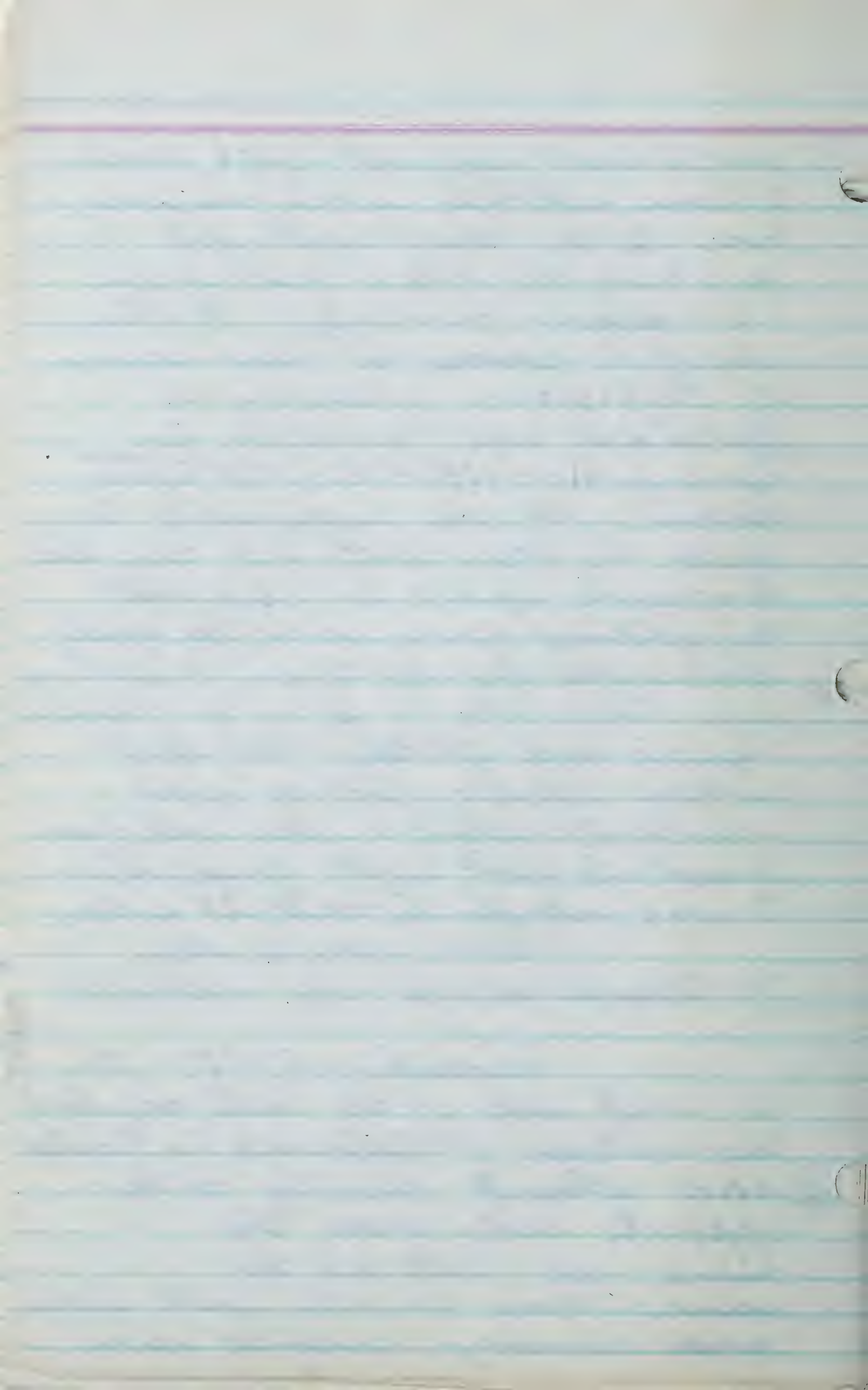
There there was no stoke
but plenty of room above.
Some forty feet ^{above} from the level
where we were was a shelf.
I thought that if I could
get up there perhaps my light
would drive the bats down
and then catch them in the
mosquito net trap. One of the
boys dragged in a long pole
and another brought a ~~rope~~
rope. I climbed the pole then
threw my rope over one of the
brace ~~poles~~ poles near the shelf.
I tried my weight on the rope
several times before I ventured
on up hand over hand. When
I reached the pole I was a
little uneasy about getting on
top of it because it was resting
on three to four inch shelves
at either end, and it was damp
and sleek. I wasn't going to
quit then and I couldn't hang
there much longer so I pulled
myself on over the pole. The
shelf was about three feet
from this pole. Three feet is
a long way when footing is
unsecure and there are hard
rock walls below. By bracing



my hands against both walls I was able to work my way over to the shelf without pushing the brace pole from its narrow moorings. On this shelf I found a nice series of *Phyllostomus* showing a splendid age variation in young. Nos. 12169 to 12178^{inclusive} were taken. It was impossible to drive the other bats out, they had too much space to fly about. My getting down from the shelf was even harder than crawling up. The bats kept up a continuous squeek and flutter. At last when secure footing was reached below I was wet from head to foot with perspiration. I was ready to call it a day.

Clear warm day.
No temperature was recorded.

December 18, 1926 - On the east side of the hill on which the village of Tabasco is located and almost directly on the opposite side from the mine we entered the mine. Many tunnels with stokes and chimneys ramified about



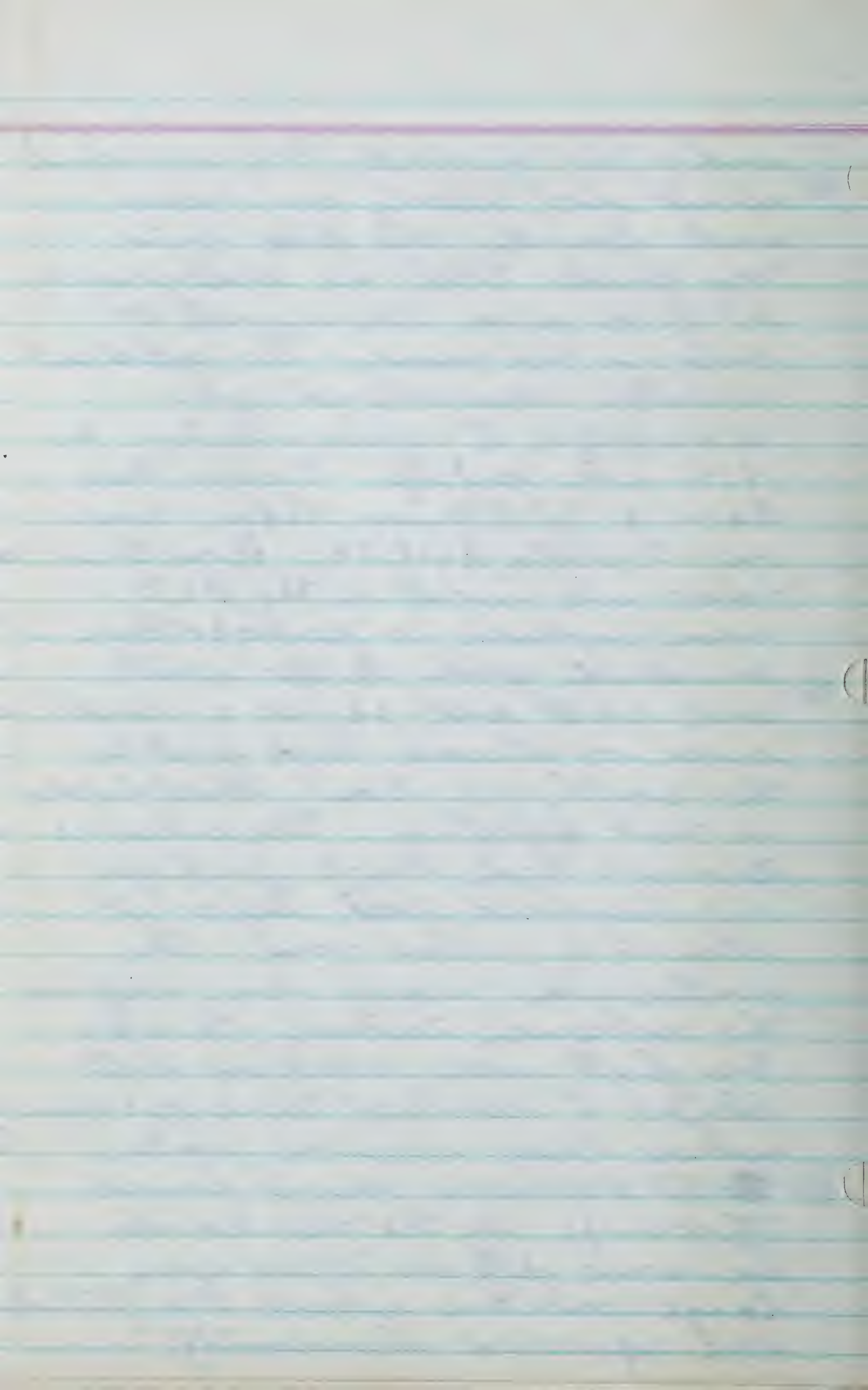
under the ground. We searched about for nearly an hour and found very few bats.

My guide told me that formerly he had seen thousands of bats in the mine. The greatest number encountered were

Glossophaga. A representative No. 12196 was put up. I saw two *Carollia*, No. 12195 was taken, and one *Diphylla*, No. 12194. From this mine we went to the No. 3

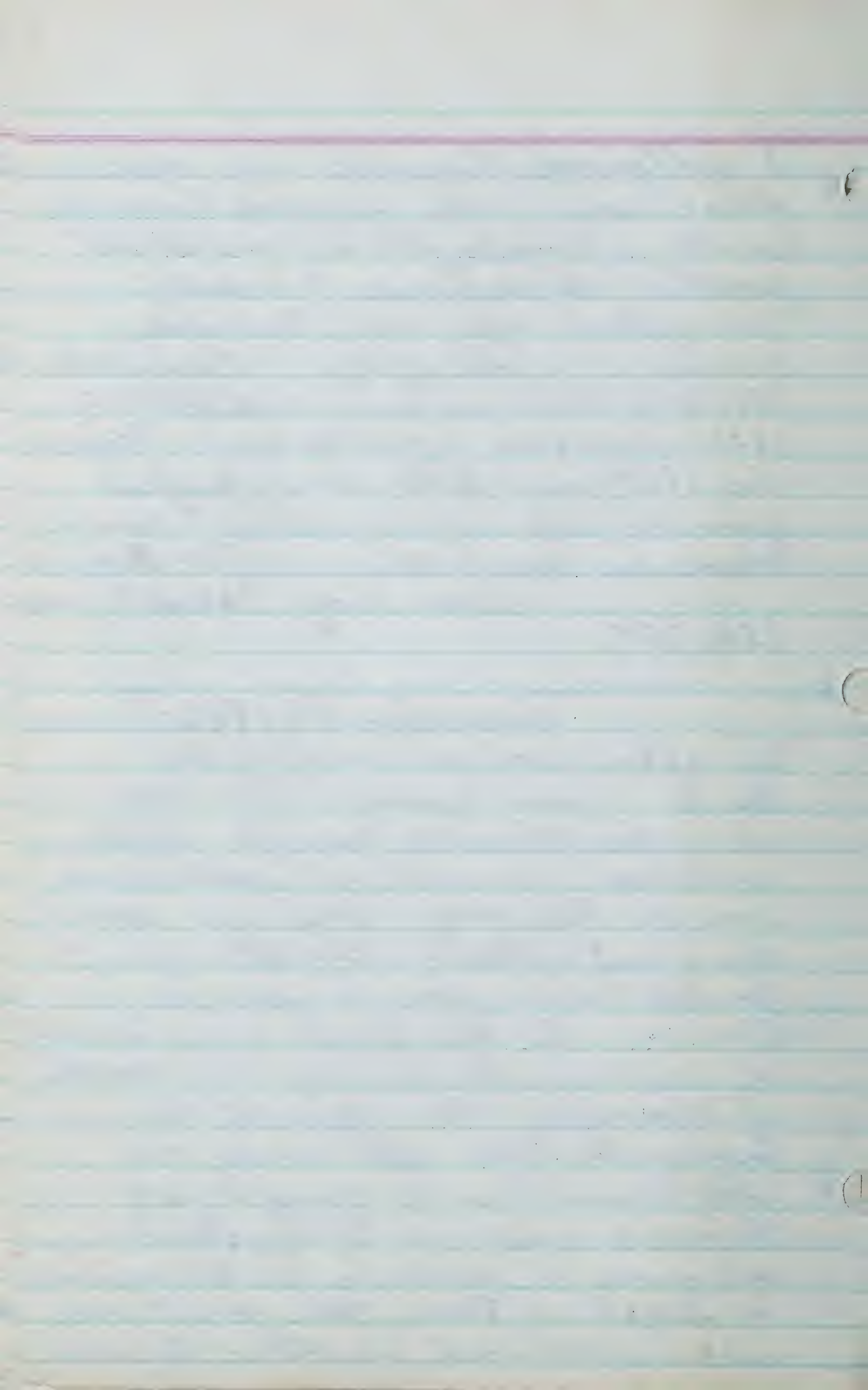
mine which is perhaps three hundred yards to the south and east and across a small river or stream and just to the south of a trail that leads in that direction. The entrance tunnel led back perhaps one hundred feet before it struck a cross vein. The water was nearly knee deep in the entrance tunnel therefore my feet were soaking wet before I reached the cross vein where there was no water.

At the cross vein I found *Mormoops* by the thousands. In some places there were large cavities where they fluttered and squeaked abundantly.



I followed tunnels in various directions and found Mormoops to be abundant in most all parts. Sometimes I saw a *Chilonycteris rubiginosa*, *Pteronotus*, *Natalus* or a *Glossophaga*. Mormoops Nos. 12186 to 12191 inclusive and 12197 to 12200 inclusive were taken. *Pteronotus* Nos. 12192 and 12193 were picked from the side walls where I found them in association with Mormoops. Clear day. 7 A.M. 62°F. and 12 N. 85°F.

December 19, 1926 - During the after noon we visited the No. 3 mine again. As before along the entrance tunnel where we had to wade in water we found *Glossophaga* and in some of the first lateral tunnels we found them also I saw one *Carollia*. In the first cross tunnel or ore vein there were thousands of Mormoops. We spread our mosquito bed net across one side tunnel and caught 64 Mormoops and one *Chilonycteris rubiginosa* by making a drive with a light. From the first vein we followed another tunnel

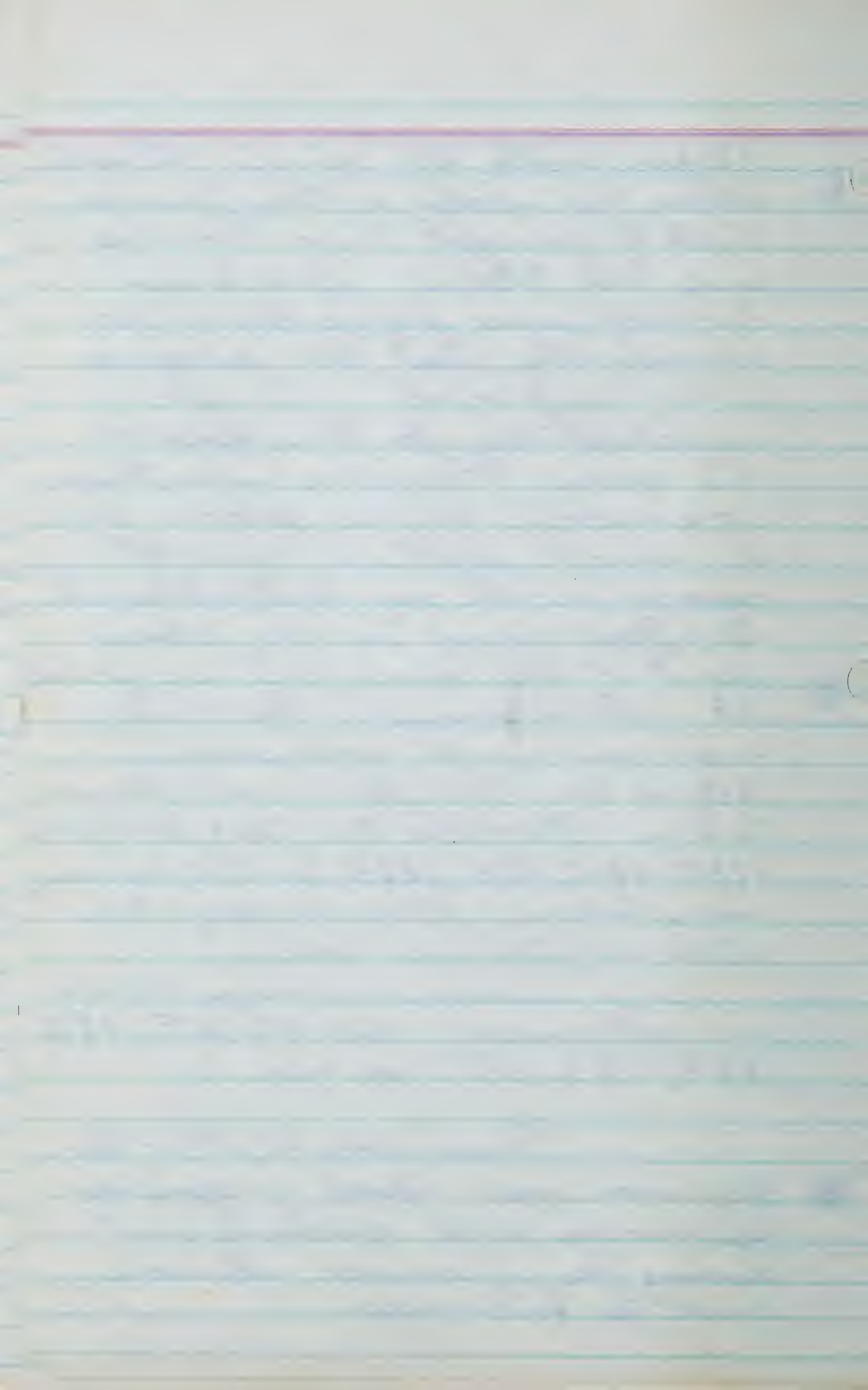


deeper into the mine. It was along the walls of this tunnel that I caught two *Pteronotus* and one *Natalus*. Sometimes Mormoops were flying by us so abundantly that our progress was impeded. As we reached the farther end of the mine *Pteronotus* were more common. At one place over a small slope I caught many with my butterfly net. It was damp in the back part of the mine but we found it well drained. The mine was alive with cockroaches.

Natalus Nos. 12201, 12202, and 12209 were taken. *Pteronotus* Nos. 12203, 12204, 12205, 12207, 12208, 12210, 12212 to 12219 inclusive were taken. *Pteronotus davyi*, Nos. 12206, and 12211 were taken.

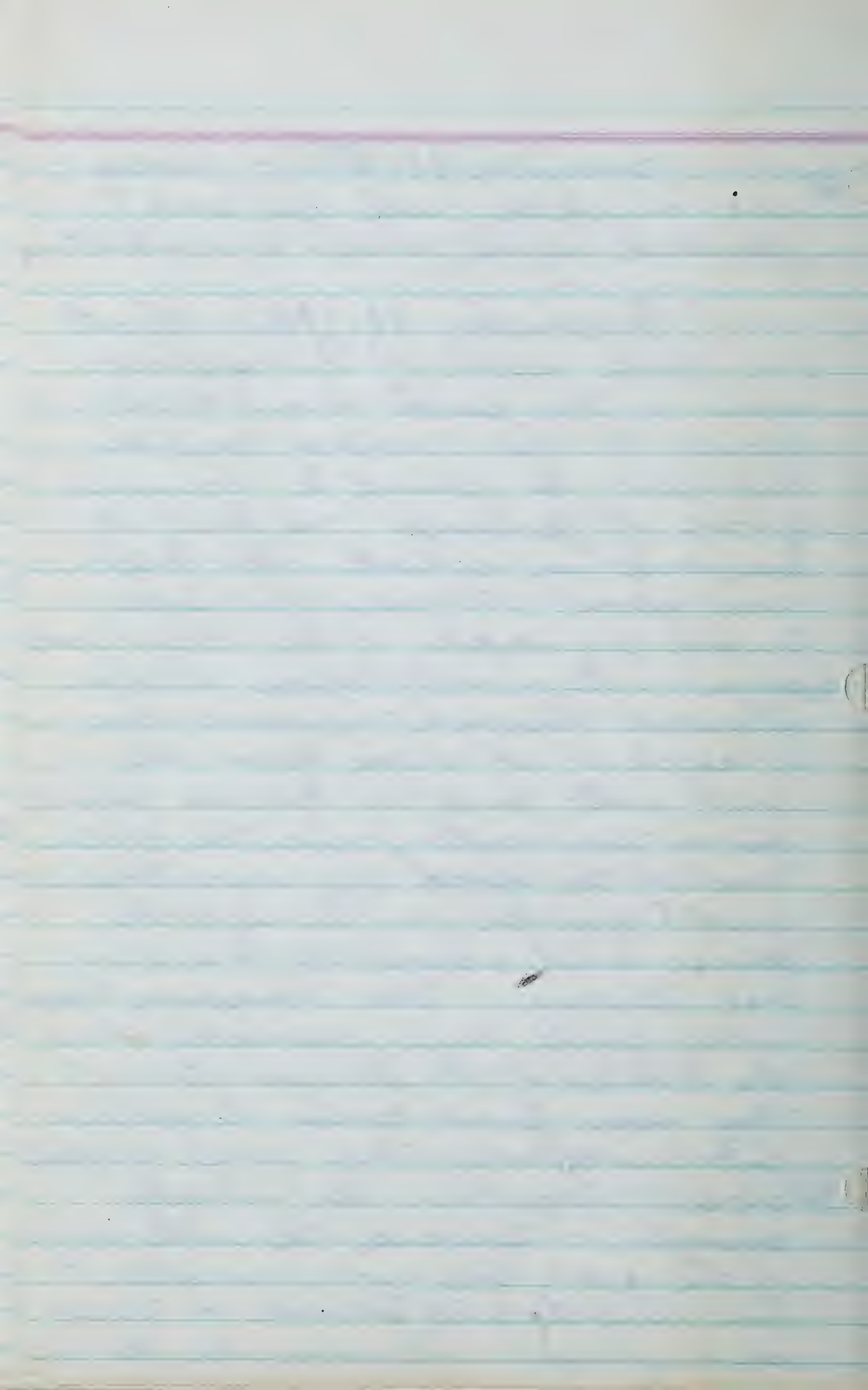
Clear morning cloudy in afternoon. 6:30 A.M. 60°F; 12 N. 80°F; 12 N. 117°F. in sun.

December 20, 1926 - The forenoon was spent preparing specimens and packing and during the afternoon we rode back to Dibisadero.

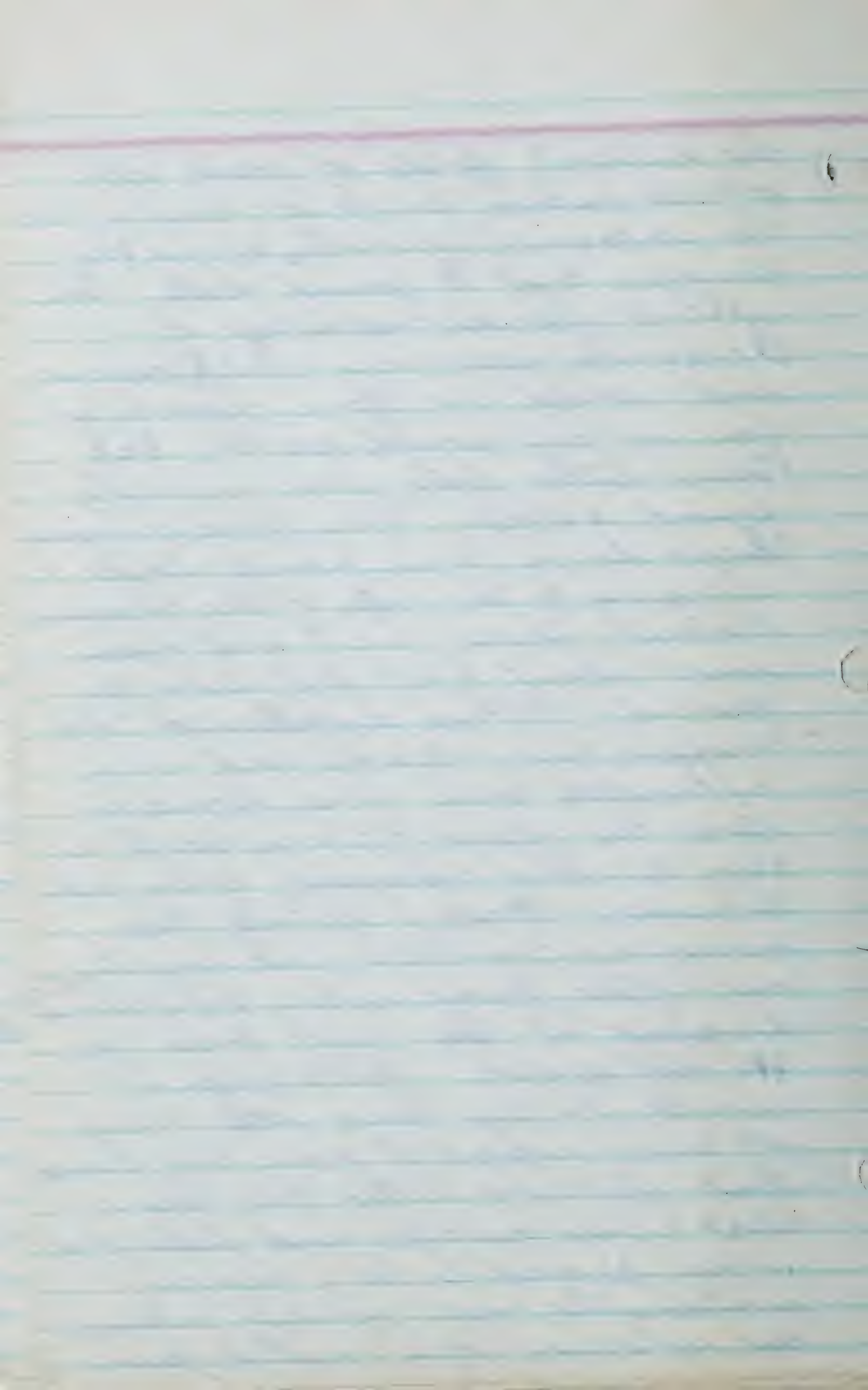


December 21, 1926, - Today we checked material and packed some skulls and skeletons.

December 22, 1926 - About one mile north of Divisadero and on the same trail that leads to the cemetery and the Rio Seco I found a banana grove of perhaps one half of an acre in extent. The grove was about 100 yards this side, toward Divisadero, of the Graveyard mine. A small clear stream flowed through the grove, one branch of it came from the south west and the second flowed from the south, near the north end of the ~~grove~~ they came together and I passed on through the place and across the trail as one stream. The banana trees were quite high, especially along the banks of the streams where they were from twelve to fifteen feet ⁱⁿ height, also they were grouped closely together in shady clumps. Toward the outer edge of the grove they were smaller in height and ~~number~~ ⁱⁿ number of trees in a group. It was in the



the darkest folds of bent over
or ^{terib}-broken banana leaves in
the heavier growths along the
streams that I found bats. The
yellow facial markings of
Uroderma were very conspicuous
and could be seen nearly as
far as one could see the bat.
These little bats were usually
found asleep. They were hanging
head down, their sharp claws
clinging to the ribs of the banana
leaves. Those seen and taken
were about 4 to 7 feet from the
ground. When awakened they
dropped their heads and even
extended their nose dorsally
above the plane of their back as
they twisted nervously from side
to side. Once I found two
hanging together but unfortunately
one flew away when the other
dropped at ~~the~~ shot from my
#10 shot pistol. Although I
went to the tree or clump
of trees where I saw the second
bat fly and killed one there
that was awake and disturbed
which proved to be a female
mating the male already taken,
the evidence of a mated pair



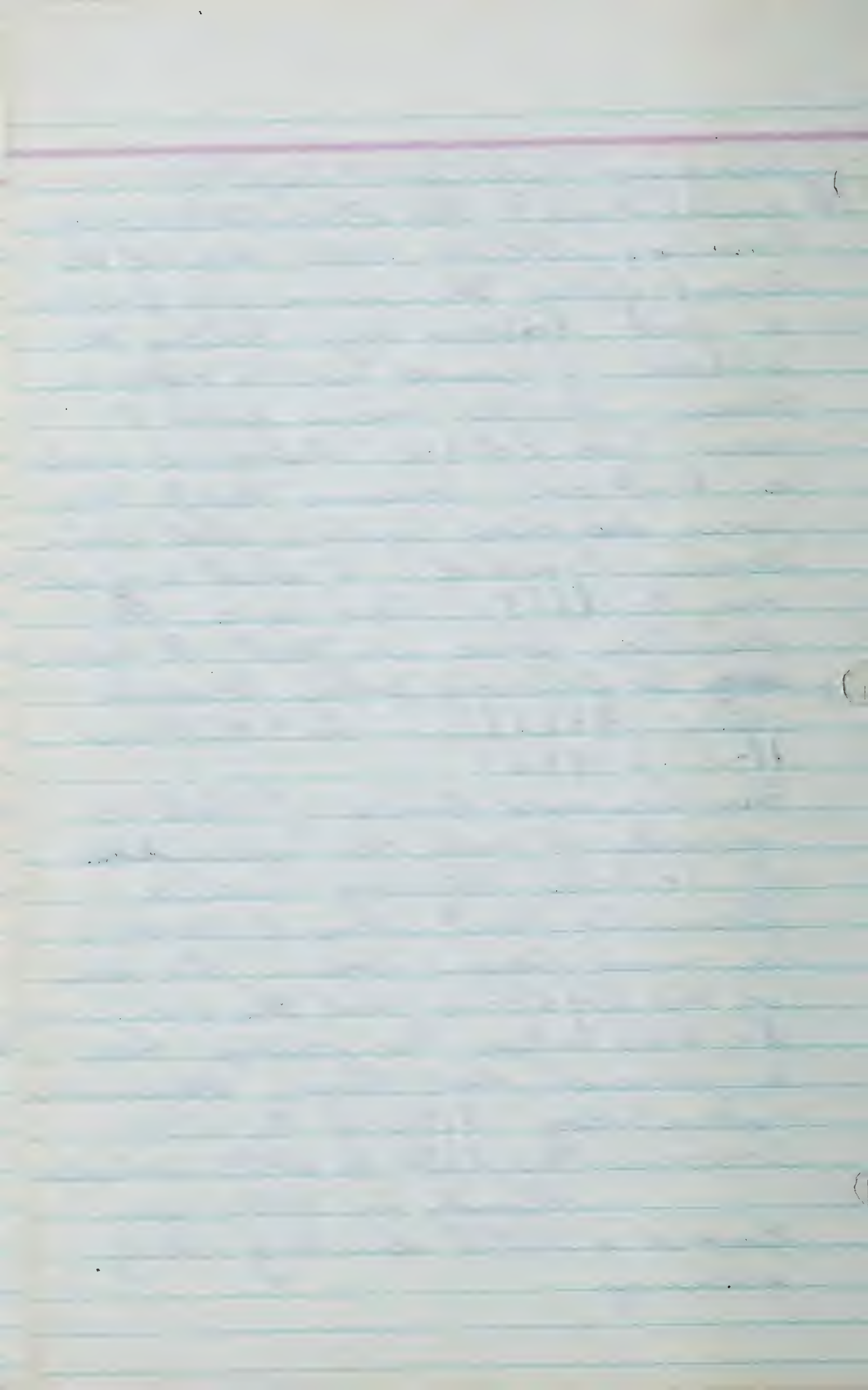
hanging together might be questioned? All others taken were males. On the north side of the trail from the main grove were a few banana trees along the stream. I found two *Uroderma* there. In the main grove I saw two *Artibeus* hanging under a bent over banana leaf. They were ~~so~~ close together that their bodies touched. I shot and got one, No. 12229. This is a very peculiar form in that it has ~~only~~ the following dental formula

$$\frac{-23.1. - - 345670}{+2-1.1. - 2 - 4567}$$

In Miller's

Families and Genera of bats he speaks of only one ~~specimen~~ of *Artibeus* having such a formula, that being *A. planirostris* a much larger form. In some of the *Uroderma* and the one *Artibeus* taken the pelage had a greenish olive tinge. Specimens taken today. *Artibeus* No. 12229; *Uroderma* Nos. 12224 to 12228 inclusive

Cloudy in afternoon.
Rained a little during early evening.



December 23, 1926 -

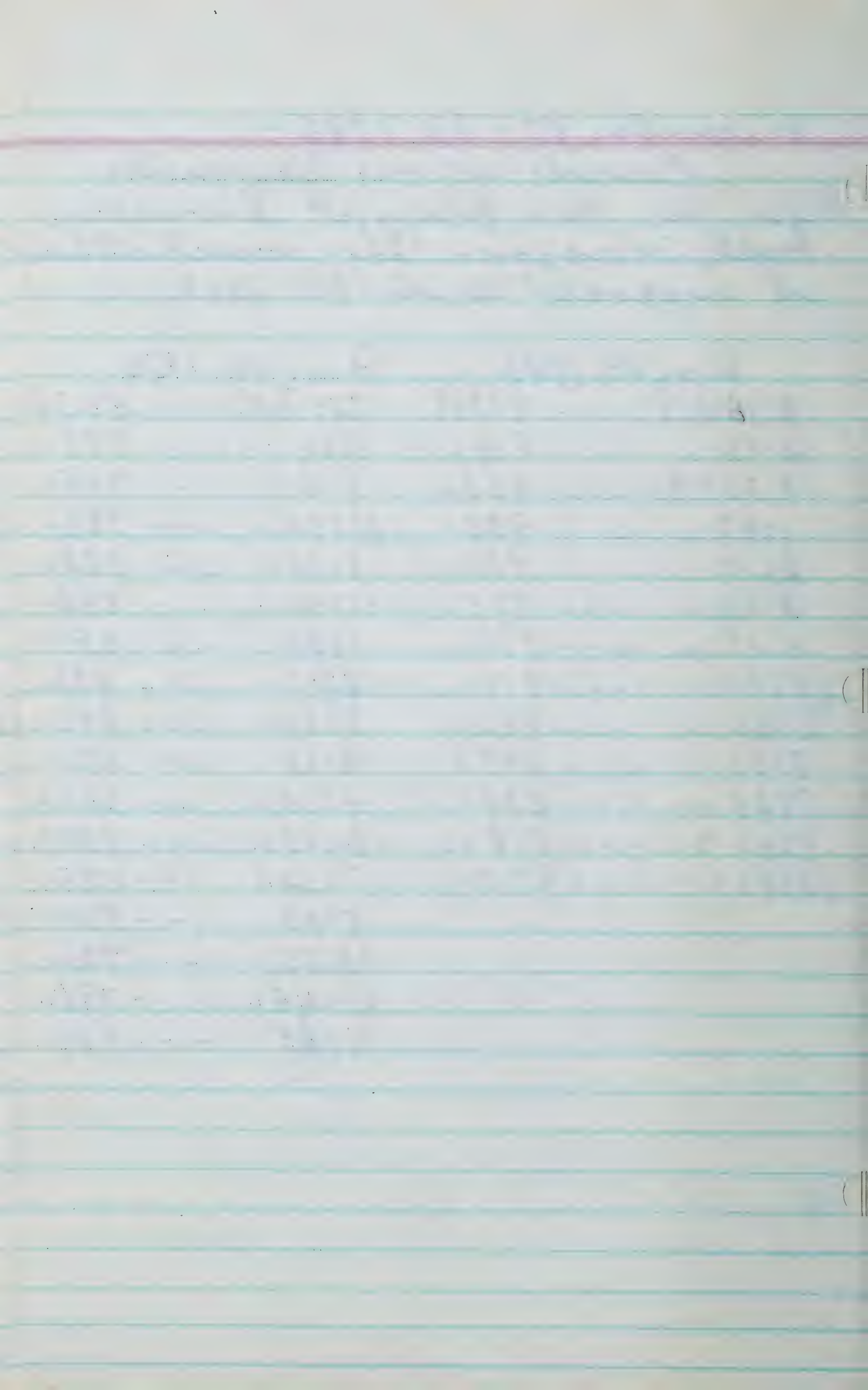
J. D. Stilton went back to the banana grove again today and collected *Artibeus* Nos. 12230, 12232, 12233 and 12235. *Uroderma* Nos. 12231, and 12234. I made a trip to the Encuentro mine which is about three miles west of Divisadero on the Rio Seco. The description given of the tunnels does not need repetition for I saw very little change. There were more *Glossophaga* than in the mine last year. I could see no difference in the comparative numbers of *Mormoops* and *Chilonycteris rubiginosa*. In one drive, in the same tunnel that I drove last year, I caught 1140 *Mormoops* and 16 *Chilonycteris rubiginosa*. I found both of these forms more commonly in the large vein cavities. Two *Natalus* were seen in association with *Mormoops* in the large vein cavities, No. 12236 was taken. *Mormoops* Nos. 12237 to 12242 inclusive were taken and *Chilonycteris rubiginosa* Nos. 12243 to 12248 inclusive.

December 24, 25, 26, 27-19th were spent at Divisadero



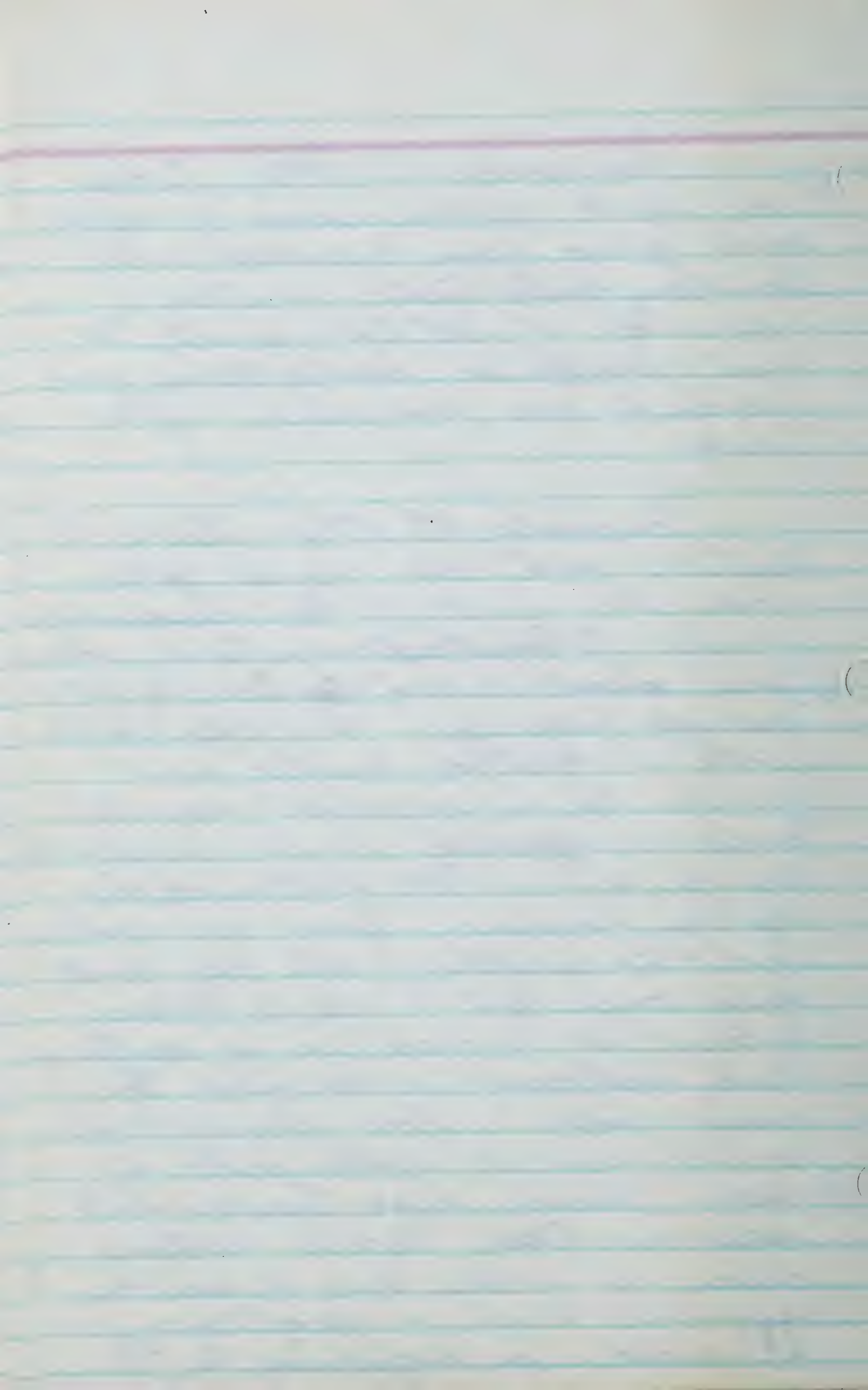
December 25-26, 1926 -
 Records of our Barometer
 for the two days at Divisadero
 Dept., Morazan. The correct altitude
 is supposed to be 800 feet.

Dec., 25, 1926	Dec., 26, 1926
9:36 A.M. --- 812 ft.	7:25 A.M. --- 800 ft.
10:56 " --- 812 "	8:32 " --- 775 "
12:30 P.M. --- 860 "	9:10 " --- 775 "
1:47 " --- 900 "	10:30 " --- 785 "
2:50 " --- 910 "	12:00 " --- 825 "
3:40 " --- 925 "	12:46 " --- 840 "
4:15 " --- 910 "	1:30 " --- 850 "
5:15 " --- 910 "	2:15 " --- 875 "
6:06 " --- 875 "	3:30 " --- 890 "
7:00 " --- 850 "	4:15 " --- 890 "
7:25 " --- 835 "	5:30 " --- 860 "
8:41 " --- 812 "	6:45 " --- 850 "
10:23 " --- 800 "	7:32 " --- 825 "
	8:00 " --- 800 "
	10:00 " --- 790 "
	10:45 " --- 790 "
	11:25 " --- 800 "



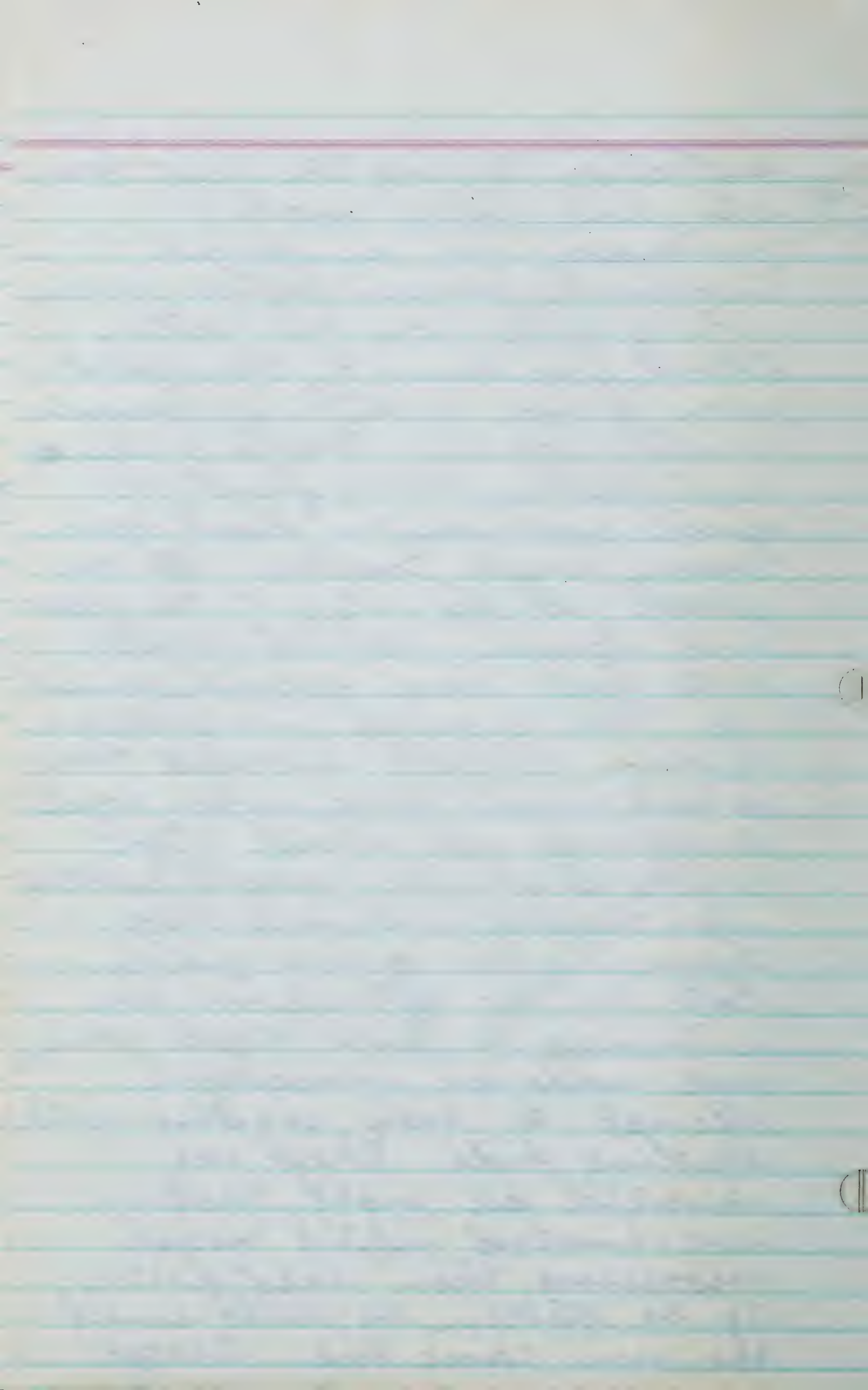
December 28, 1926 - Today we spent seven hours on mule back going from Divisadero to the Manzanilla Estate, now the hacienda of Sr. Swanquist. We had lunch at Santa Rosa and reached our destination after dark.

December 29, 1926 - George D. Stinton and our mose José rode due west of the hacienda house to Cerro Mogote mountain where José had killed ~~the~~ Canis No. 12258 several days ago. I rode south with a native hunter and guide to a wooded mountain area supposed to be inhabited by piscardes. We followed the rocky ravines from one water hole to another all day and only once did I see a place where it looked as if something had wallowed in the mud. This was under a low shady bush or tree near a water hole. I saw many deer tracks but saw no deer. While resting near a water hole I saw a squirrel *Sciurus v. variegatoides*. It rained a few drops during the P.M.



December 30, 1926 - This morning the wind was blowing strongly from the north, at four o'clock when we were preparing to leave for the coyote country to the west of the Hacienda house. It was perhaps an hour's ride to Sero Mogote mountain, known here as the home of coyotes. There are a few trails near this mountain but few people pass that way. There are three small mountains of which Victor mountain is the largest and farthest to the west. On our way to the place we passed along the north side of the one that lies to the east. Then off to the south we could see another. These mountains are perhaps a mile apart. Natives claim that the coyotes spend the day on these mountains and travel across the lower country at night. There are many places where there are large patches of wild thorny pineapples it is probable that they crawl under these for shade and

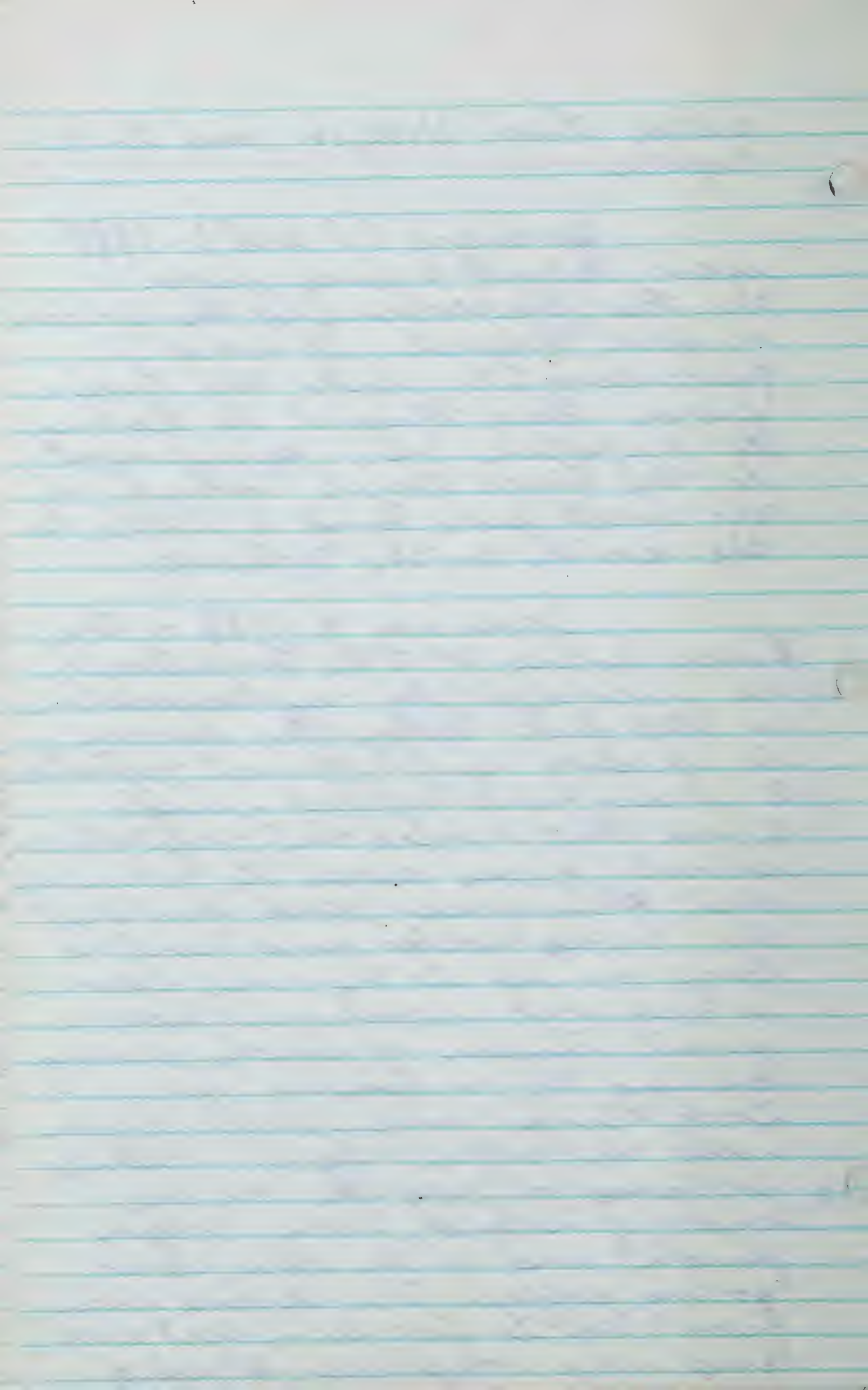
protection during the day. Four sets had been made yesterday in a small inclosure, perhaps fifteen acres, where there was no cattle. About five acres of this plot was grass and the remainder carbon brush. Trails hither and thither throughout the field and in the dust were many coyote tracks. At one place at the edge of the grass and brush was a water hole that had recently dried up. The ground was worn nearly smooth around this place and there were coyote droppings all about. The coyote that was caught, No. 12260, was trapped between two trees in the grassy patch. Late in the afternoon we returned to Cerro Mogote mountain and made an unsuccessful attempt to draw coyotes with blatting kids. Then we hunted all night, that is we hunted until nearly morning then laid down to be bitten by ants until the sun came up. George



killed two Urocyon and two Mephitis.

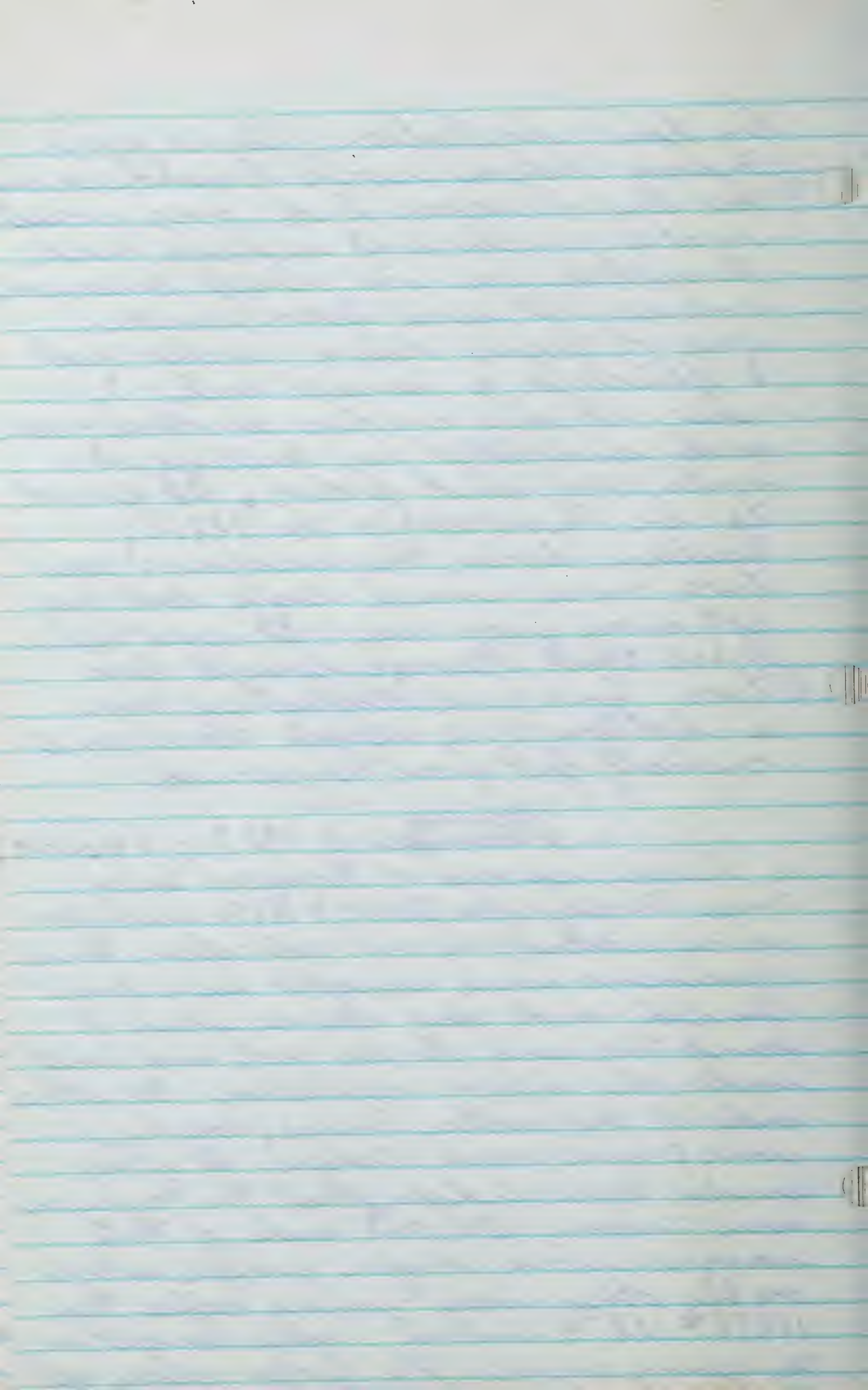
January 1, 2, and 3 - 1927 were spent going from the Rio Gracioso to the Volcano of San Miguel. It was necessary to take the train from San Miguel to Patate to dispatch our equipment to the Finca Angel which on the west side and a little to the south on the Volcano.

January 4, 1927 - The Finca house of the Finca Angel as recorded by my Barometer is 3000 feet. Below the house is heavy sub-tropical vegetation. A heavy sub-tropical jungle. Above the house the vegetation slowly gives away to shrubbery and then grass and farther the lava rocks and soil is bare on up to the cone, from which one sometimes sees a small stream of smoke arising. During the morning we took traps and went down into the coffee region. While following a ravine on one side of which was virgin jungle and on the other was young coffee. The ravine was from ten to fourteen feet deep and was completely shaded.



by low vegetation. There were many lava rock boulders in the dry stream bed over which water in the wet season, had tumbled in its steep downward course. It was from under one of these lava rocks that I flushed a small bat. I saw it fly under another rock and succeeded in killing it with my shot pistol. It proved to be *Lonchophylla* No. 12265. Farther down the ravine I saw two more small bats but they got away from me. It was near there that George found his two Four-toed Anteaters in a hollow tree about three and one half feet from the ground.

~~December~~ ^{January} 5, 1927 - I found a large species of *Peromyscus* in my traps today. Nos. 12268 to 12271 inclusive were added to our collection. These specimens were caught in a dense shaded and deep ravine where I found the soil to be cool and moist under the heavy vegetation. On either side of the water course, now dry, were lava rock ledges. It was under these ledges that the *Peromyscus* were taken. On one side of this ravine was virgin jungle while on the other was young coffee. Nos. 12272 to 12274 inclusive were caught in the young coffee. The traps were set

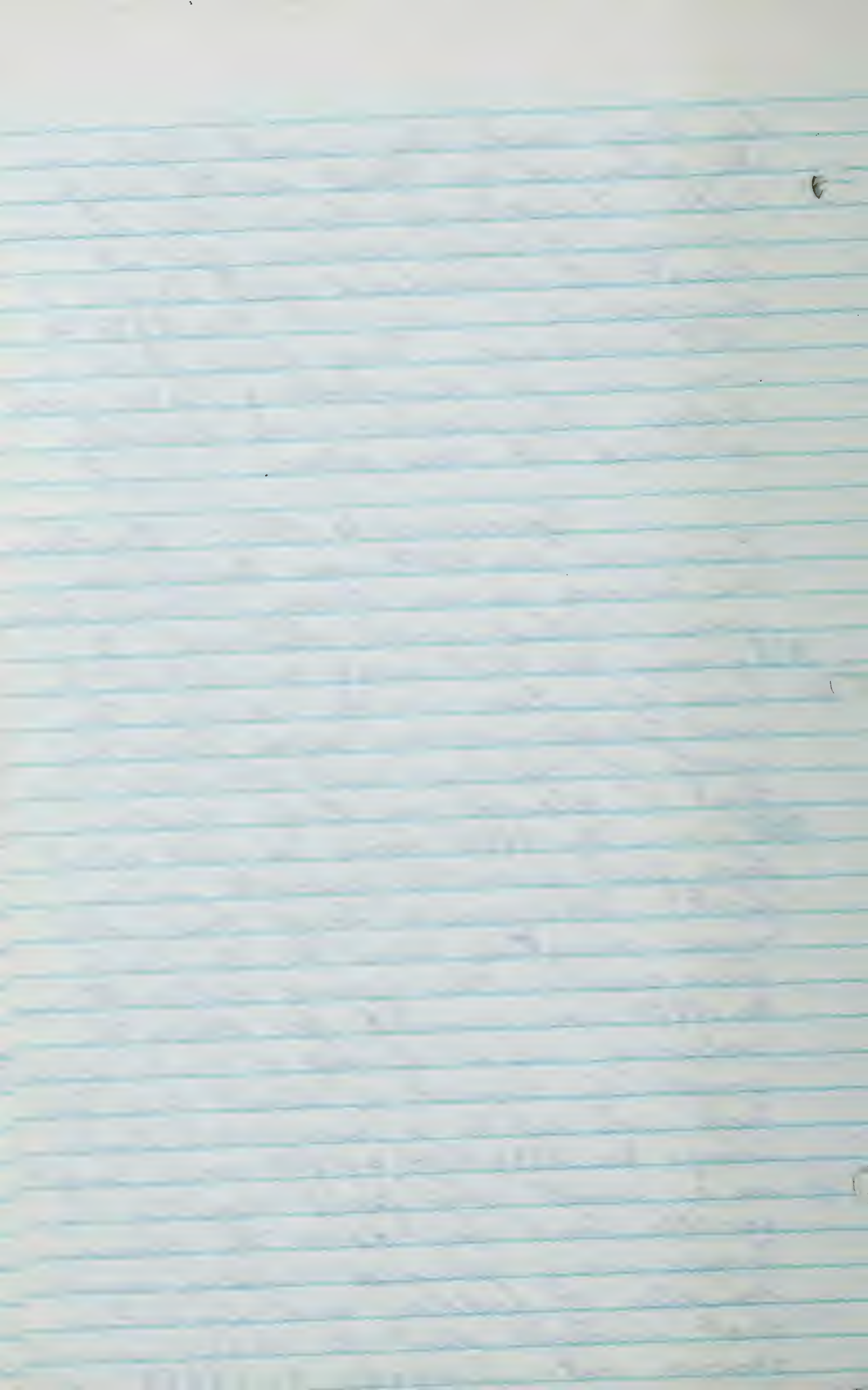


by logs and by small holes in the ground on that south slope. After traveling down the stream course of this ravine for at least a hundred feet lower I discovered

Nos. 12275 to

12278 inclusive. They flew from a cove in a projecting lava rock ledge. The ravine was densely shaded at this place

January 6, 1927 - Another *Peromyscus* No. 12288 was taken in the shady ravine today. These traps were baited with oatmeal. A *Otodylomys* No. 12287 was caught at the base of a tree in the ravine. The soil had worked away from the roots of the tree and it was there that I placed my trap. Another *Otodylomys* No. 12286 was caught about two feet from the ground in a fork. This was a large tree with vines clinging close to its bark. This was in the young coffee *Otodylomys* No. 12289 was caught far down the volcano in a clump of vines which completely covered a small tree. The trap was set on a horizontal limb. *Liomys* Nos. 12284, 12285, & 12288 were caught in a small corn field close to the caretta trail far down the volcano. Traps were placed under small bundles of fodder and by holes that showed dirt to have recently thrown out. *Sigmodon* No. 12282 was

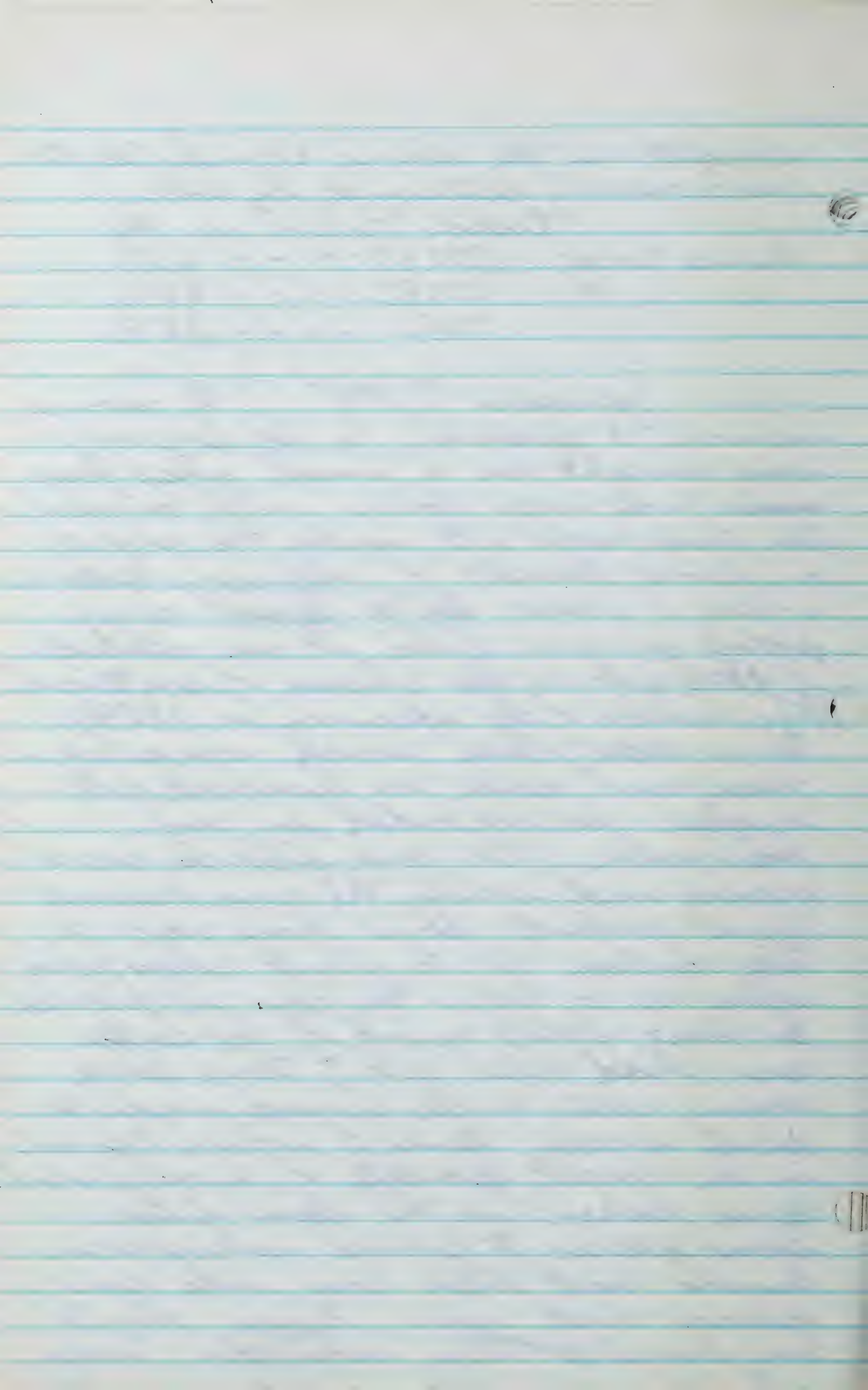


caught in the same cornfield. It was nearly destroyed by ants.

Records taken in the house today

7:22 AM	- - - -	66°F.
1:30 P.M.	- - - -	80°F.
7:45 "	- - - -	70°F.

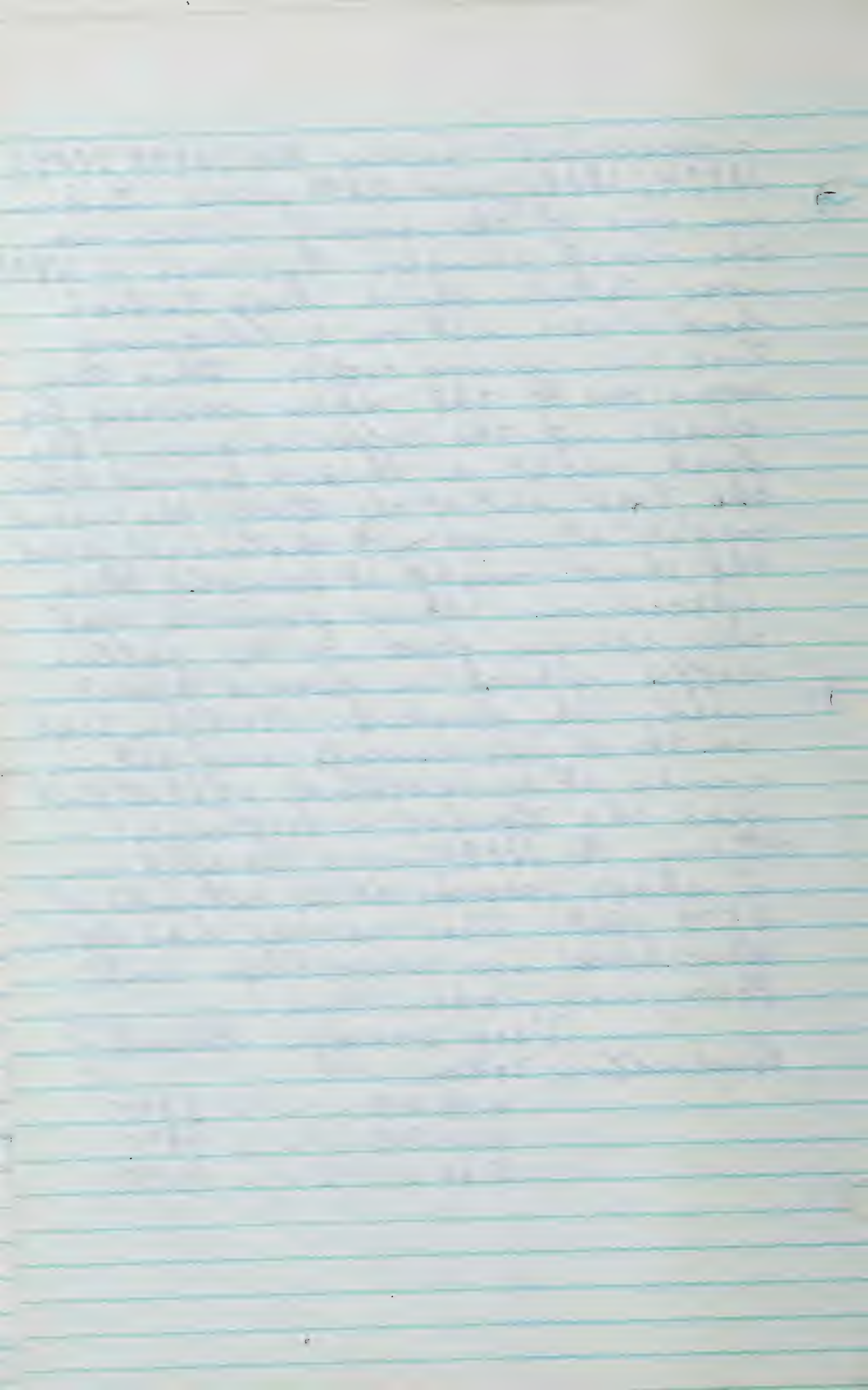
January 7, 1927 - A mouse which I assume to be *Oryzomys* was caught in a small snap trap ~~and~~ which was baited with batmeal. The trap was set under the edge of a loose bundle of cofficorn fodder which I found in a small corn patch or corn field at an altitude of 1800 feet on the Volcano of San Miguel. The number of the specimen is 12270. There ~~were~~ other small corn patches near and some one hundred feet higher as recorded by my barometer. The corn patches were grassy and weedy, the corn having been picked some time ago. The custom is to plant cofficorn after the or before the corn is picked. In these fields most of the cofficorn had been cut. There were many seeds on the ground under the dead weeds, some of which I found in the bucal pouches of *Uromys* which were taken in the same field. Some places I found where corn husks had been torn into fine pieces and were lying about in bunches ^{usually} near a corn cob. Traps set in such places were usually



successful. *Liomys* Nos. 12292, 12293, 12294, 12296, and 12297 were taken in one of the small fields near the heavy jungle. *Nyctomys* No. 12291 was taken in a trap which had been set on a leaning tree in young coffee. This tree was one of the many serving for shade in the coffee region. The first night a heavy wind blew the trap out of the tree, the second night it was not disturbed, and the third night it caught this specimen. It is possible that this species feed on the fallen coffee which is found about under the bushes. Another trap in the dense jungle and set in vines at an altitude of 1900 feet had the tail of a *Nyctomys*. *Oryzomys* No. 12295 was caught in a shady ravine at an altitude of 2500 feet. This ravine has been described in connection with *Peromyscus* taken there.

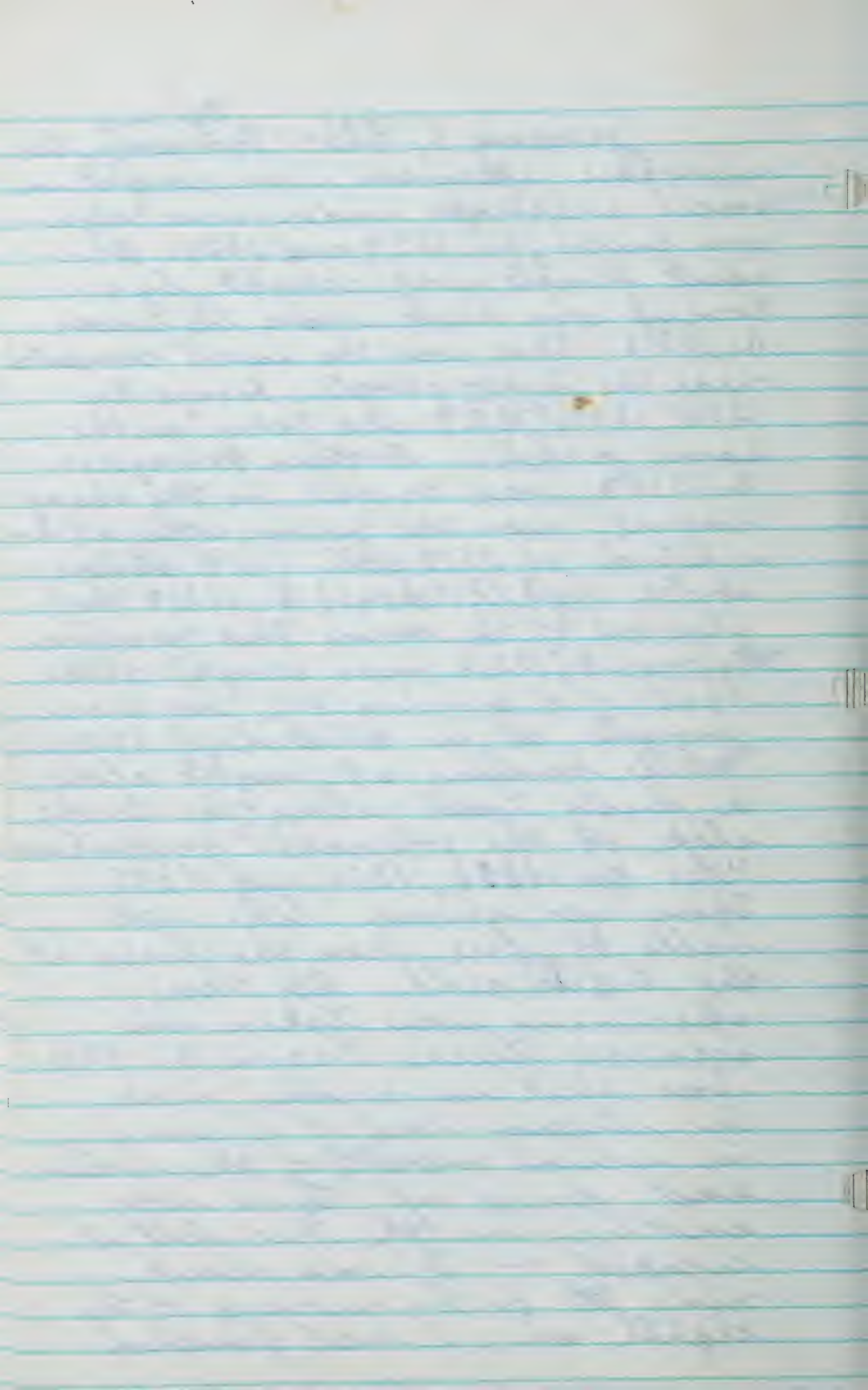
Very windy. Records of temperature today.

6:55 A.M.	- - -	63° F.
1:10 P.M.	- - -	79° F.
5:55 "	- - -	76° F.

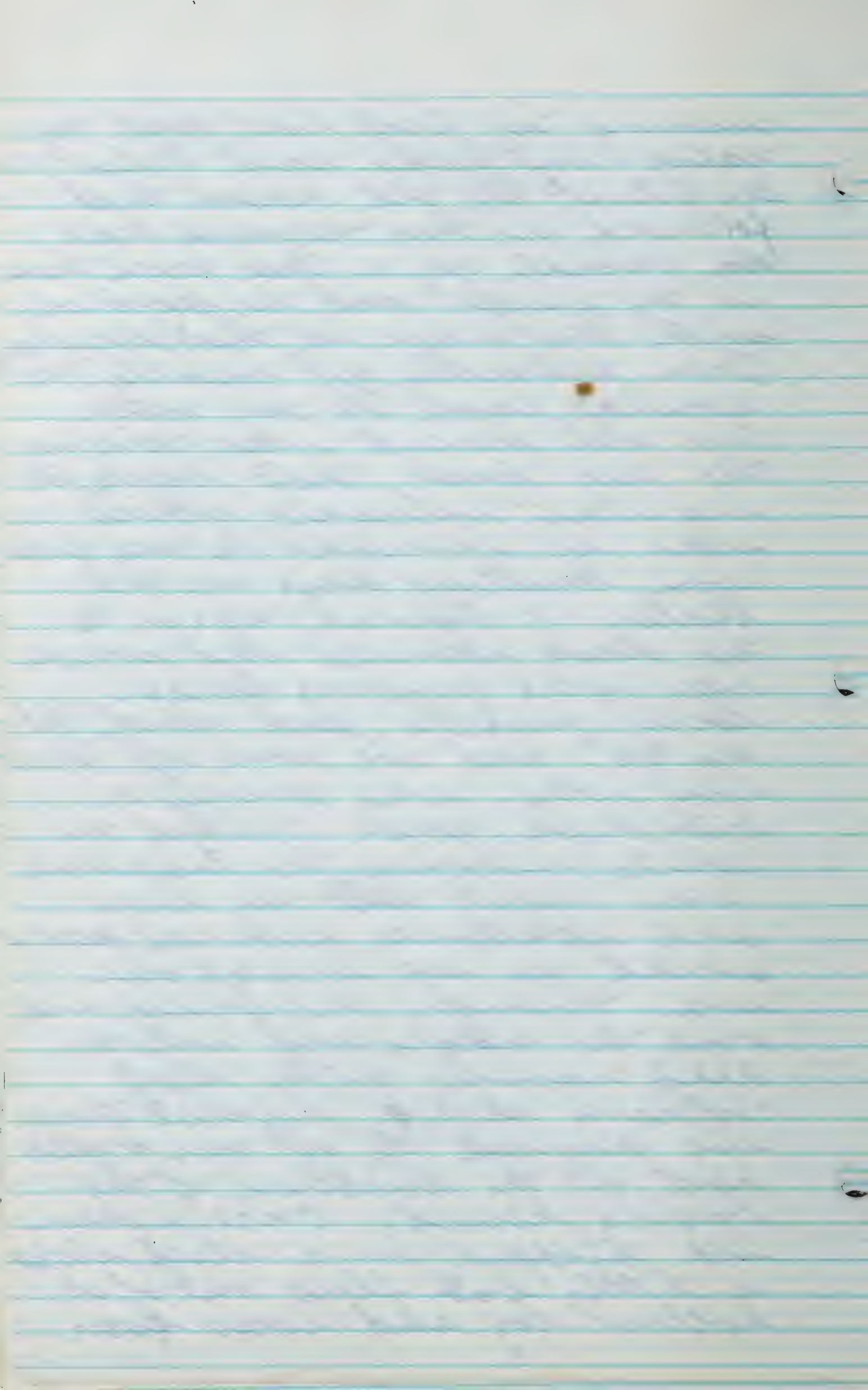


Baironys

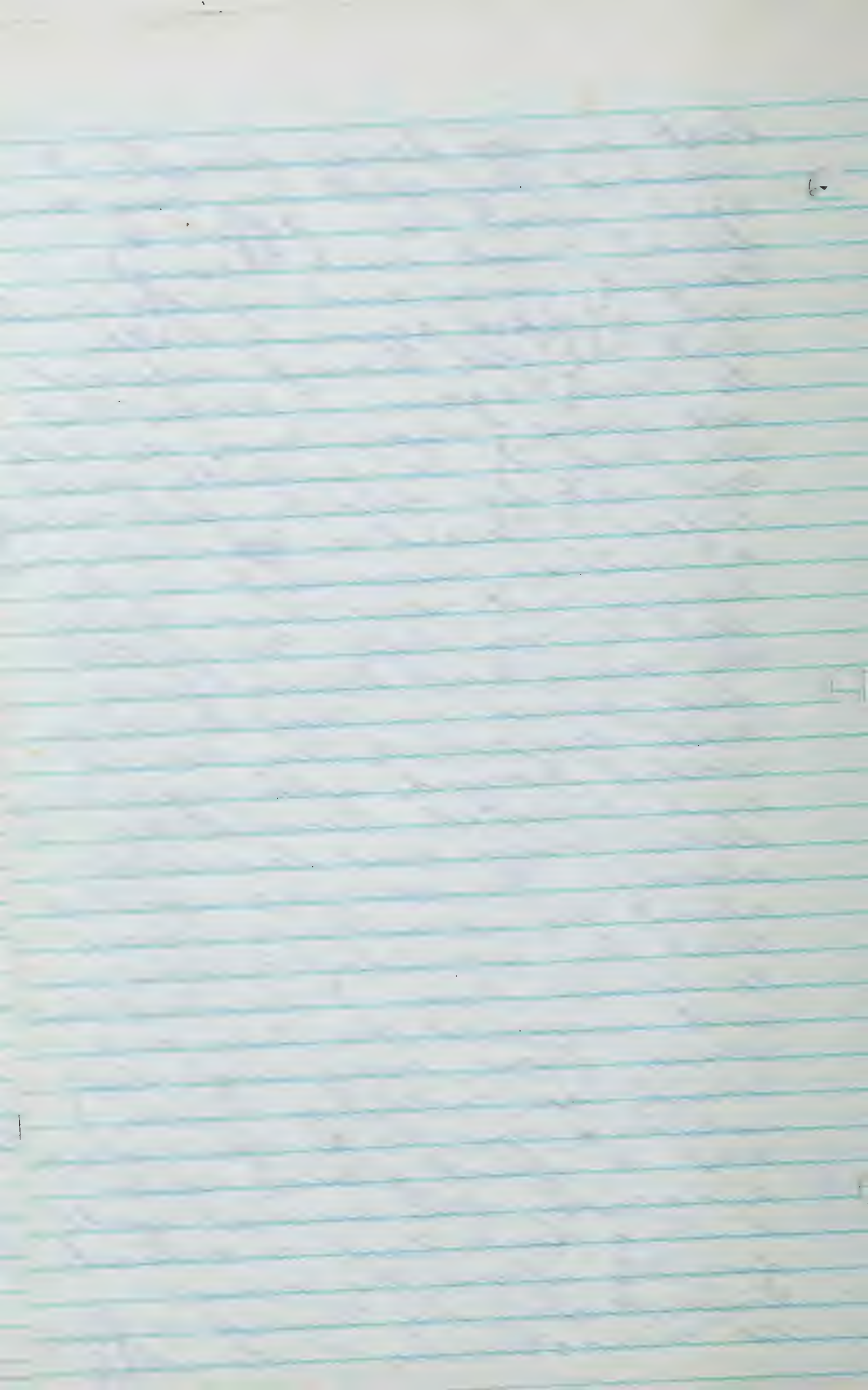
January 8, 1926 - *Sciotoxys*, two immature specimens were caught in small snaptraps under some coffee corn fodder, Nos. 12310 and 12311. An adult female was caught by a torn up corn husk under the weeds, No. 12312. This was the small corn patch near the heavy jungle. *Liomyx* Nos. 12315, 12316, 12317 were taken in the same patch. Another *Peromyscus* No. 12313 was caught in the shady ravine near the young coffee at an altitude of 1500 feet. J. V. D. Stinton shot a bat (*Artibeus*) No. 12318 that flew out of the ravine this morning. *Oryzomys* No. 12314 was caught at the base of a leaning tree in dense jungle at an altitude of 1900 feet. While hunting at night along a dusty trail along the lower slope of the volcano I encountered *Potos* Nos. 12302, 12304, and 12305. Their eyes shined like red balls of fire from the trees at the trail's side. All three specimens were taken in separate trees. *Procyon* No. 12301 was shot in a tree near the stream bed of a river in which most of the water had dried up. There was another in the tree but it escaped. — It was about nine ~~AM~~ on the morning of the eighth when I had finished



running my trap line and my native boy helper said, "Listen Don Arturo, The old hound that followed us this morning has an animal in a tree over there in the jungle," and he pointed with his finger in that direction. Then distinctly yet faintly the sound came to my ears. The old hound was voicing the tree bark, that bark at regular intervals which was so familiar to me from 'coon' hunting days in the States. I turned again to the dark skinned kid whose eyes were growing larger every minute, and said, "Let us go," and we were off. This boy who was always a hundred yards behind me while running the trapline was right ~~at~~ my side and sometimes several paces ahead as we fought our way through the brush and over the ridges and into the deep ravines on the steep volcano slopes. Several times we paused to get our breath and get the direction of the baying hound. Once when we stopped on a steep slope a little bat flew out of a hollow log and was soon

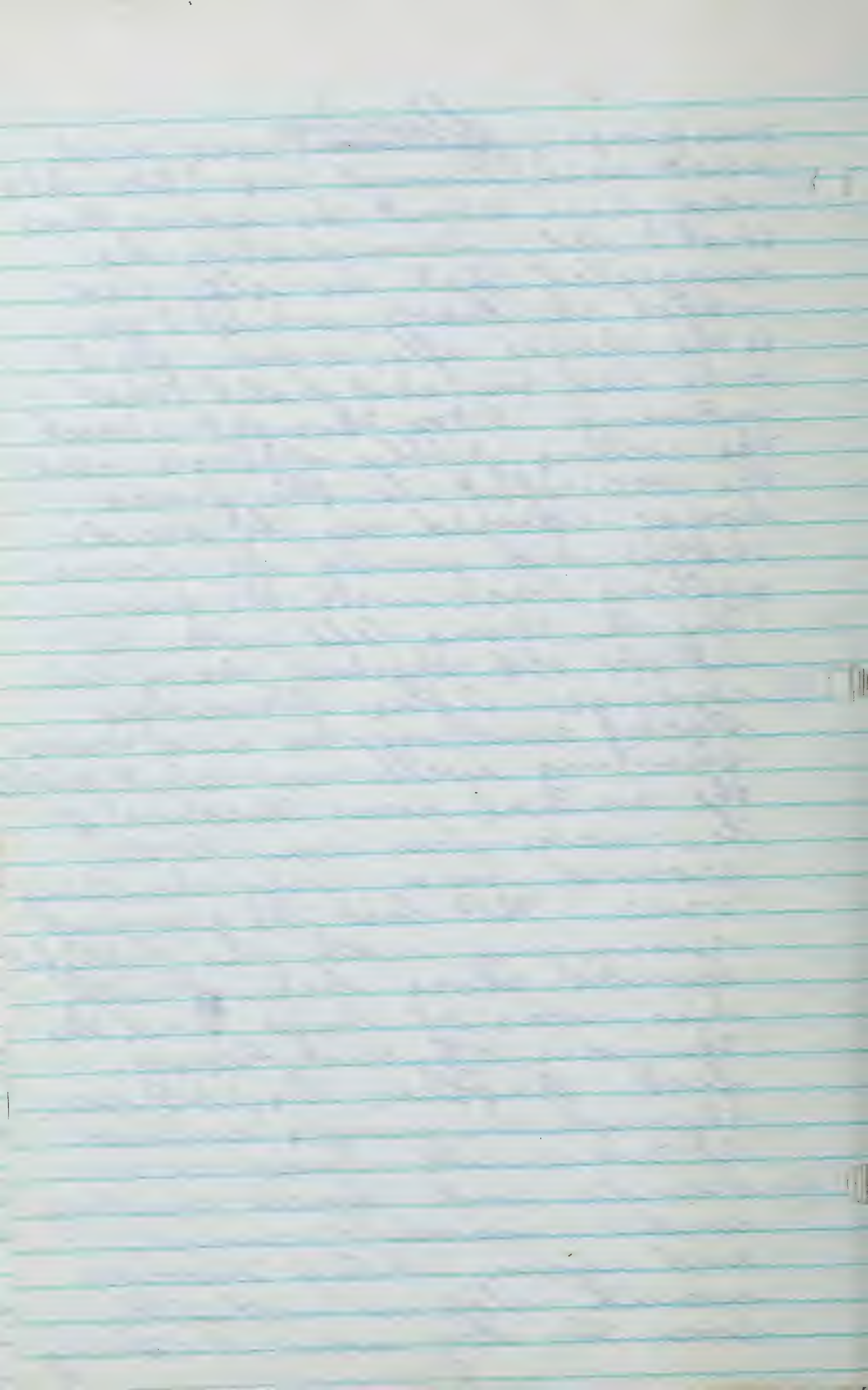


lost in the dense jungle. I marked the spot in my mind and went on. After a final mad rush through tangled vines and under brush we stopped again to listen but the old hound refused to bark again. I knew that we were near him so told the kid to be perfectly quiet. We sat for nearly five minutes before I heard a ~~low~~ whine and a restless movement in the leaves not more than fifty feet to my left. We parted the vines and brush for a few paces in that direction and discovered the old red coated hound with sparkling eyes directed toward the dense vines and branches above. He was so excited about the something above that he wouldn't allow me to touch him. I backed about and searched the trees and vines from every angle but could see nothing. Then I walked over to a open space and at first glance saw a raccoon like animal with a long dark tail on a limb directly above the vines. Immediately he turned a face, so characteristic of its white



markings, ~~flexible~~^{flexible} nose, and
shot ears, toward me. The kid
saw him about the same time
that I did. Immediately he
suggested that he stay and
watch the Picote while I go
to the house after a gun, for I
only had my shot pistol that
morning. One thought about
the rolling pebbles of lava and
the 1000 feet to the finca
house caused me to decide
that the kid would be forever
getting back with the gun.

The one thing left was to
let the old Shornd have his
revenge. After throwing
sticks and rocks and even
shooting with my shot pistol
the animal was induced
to make his way to the
ground by a long slanting
vine. He hit the ground
running with our faithful
hound close behind with
his roar of bays and the
thunder of his heavy
feet. Another terrible race
through the jungle ensued.
At times we were on our
hands and knees crawling
under masses of vines,
and again sharp thorns
would stop us instantly.
Soon the dog was barking

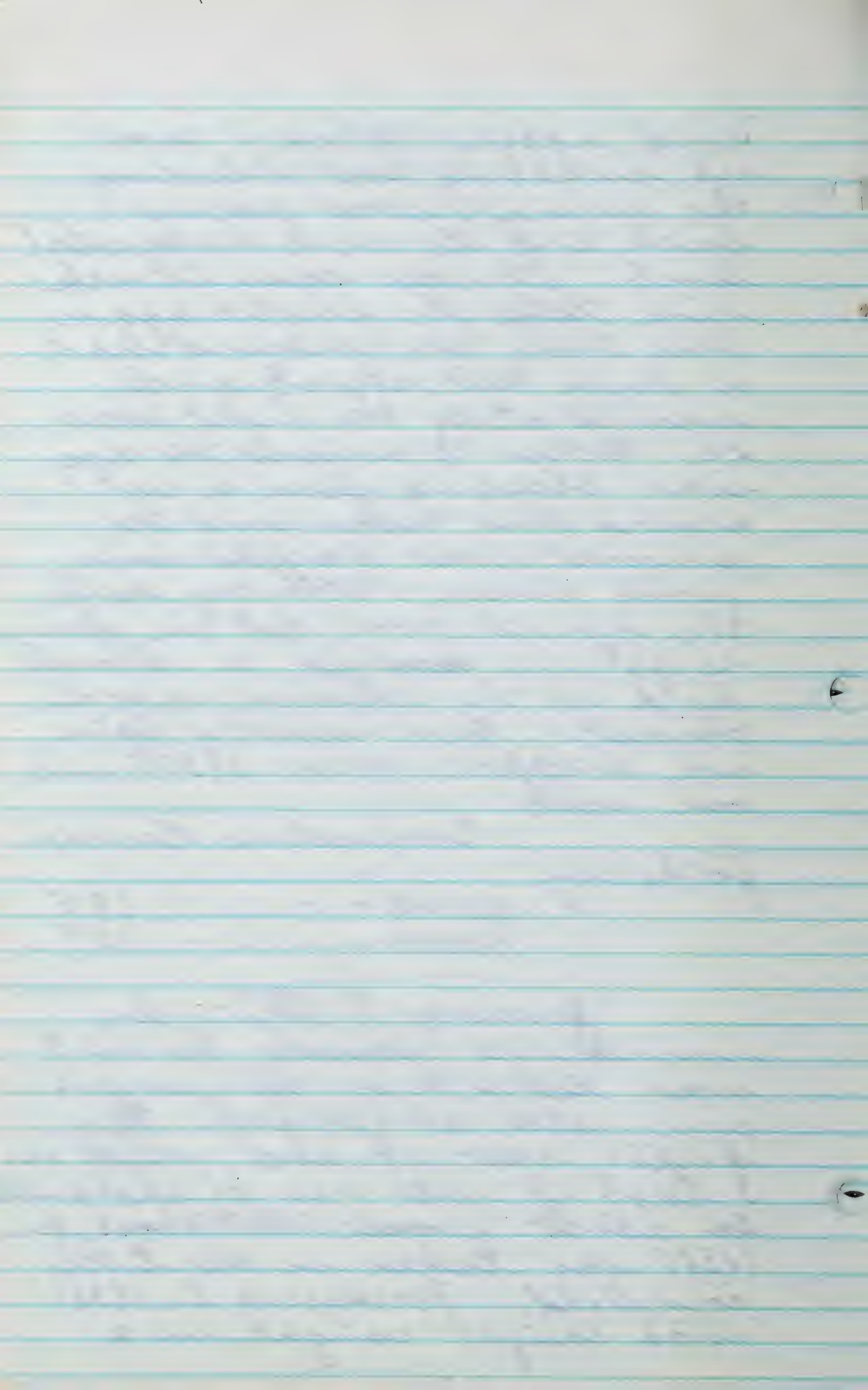


tree again. When I came up sweating and bleeding the animal was pacing back and forth on a horizontal limb. It was easy to make him take to flight again. This time the hound had a down hill shoot and immediately the fight was on. When I arrived the dog was bleeding from a cut across his nose and the animal was backed into some vines. With my help the hound soon got an opening to get in ~~and~~ for a strangle hold on the elusive rascals throat. Five minutes later we dropped Nasua 12308 into our sack.

Temperature Records
for the day.

6:55 AM	-	-	-	-	68°F
8:30 PM	-	-	-	-	70°F

January 7, 1927 - An immature female No. 12319 was taken in the small corn patch at 1900 feet. My helper saw it and called me. I shot it with my .22 shot pistol. An adult female *Scotinomys*, No. 12320 was taken in the little cornfield. *Peromyscus* No. 12321 was caught in a

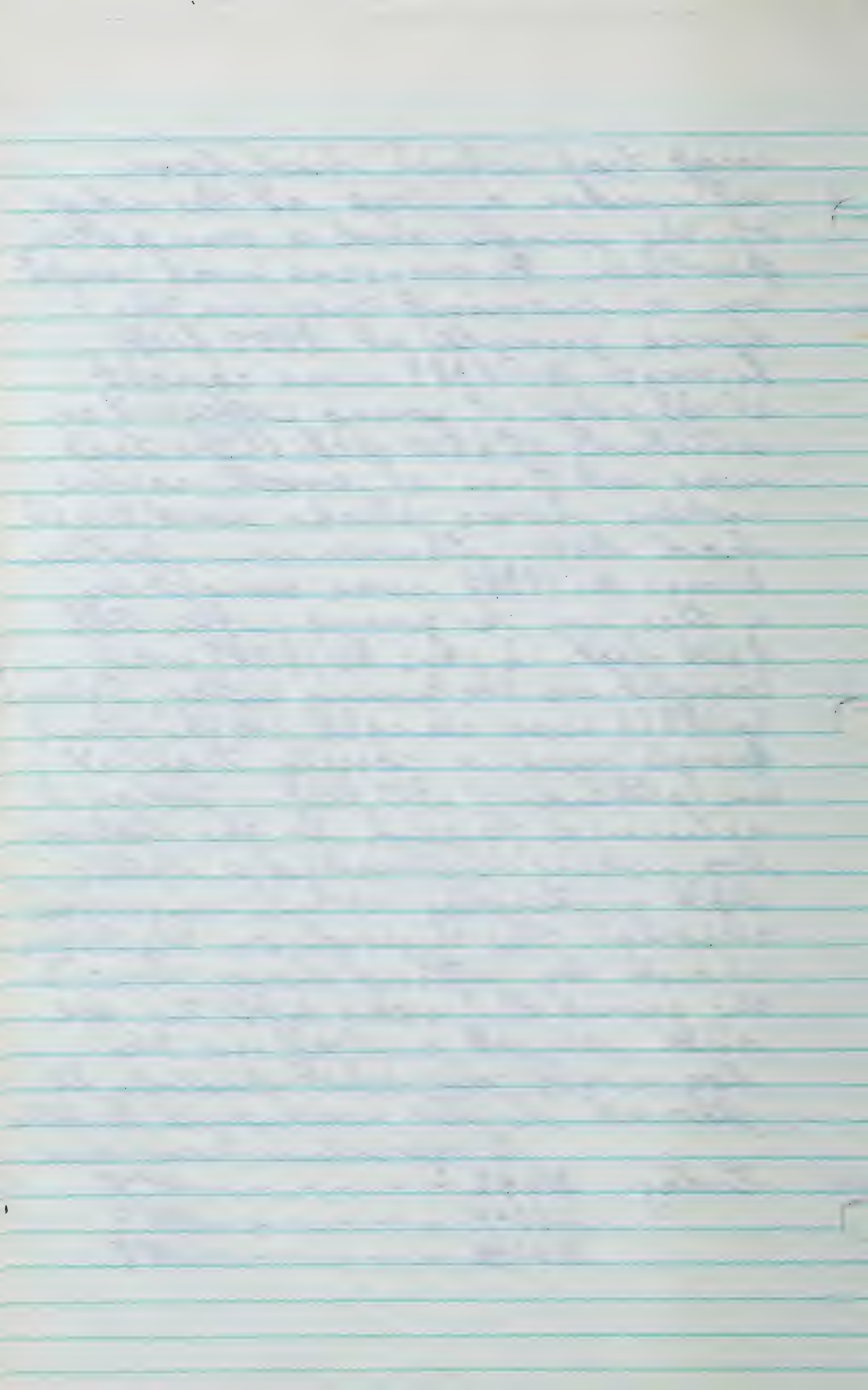


snap trap which had been set under a log at the edge of the jungle and a corn patch. Another *Peromyscus* was caught on a leaning tree in the dense jungle at 2000 feet.

Liomys No. 12323 was caught at the edge of young coffee at an altitude of 2500 feet. The trap was set in a small ravine where some sticks and trash had been thrown in. Another *Liomys* No. 12325 was caught by a tree in the young coffee alt. 2600 feet. *Liomys* No. 12327 was caught in the young coffee. *Tylomys* No. 12324 was caught in the dense jungle near a caneta trail at an altitude of 1900 feet. Today I returned again to the hollow log where I flushed a little bat yesterday while running through the jungle on the Nasua chase. By getting down low to the ground I was able to see and shoot a bat in the log with my shot pistol. It proved to be *Lonchophylla* No. 12326.

Temperature recorded

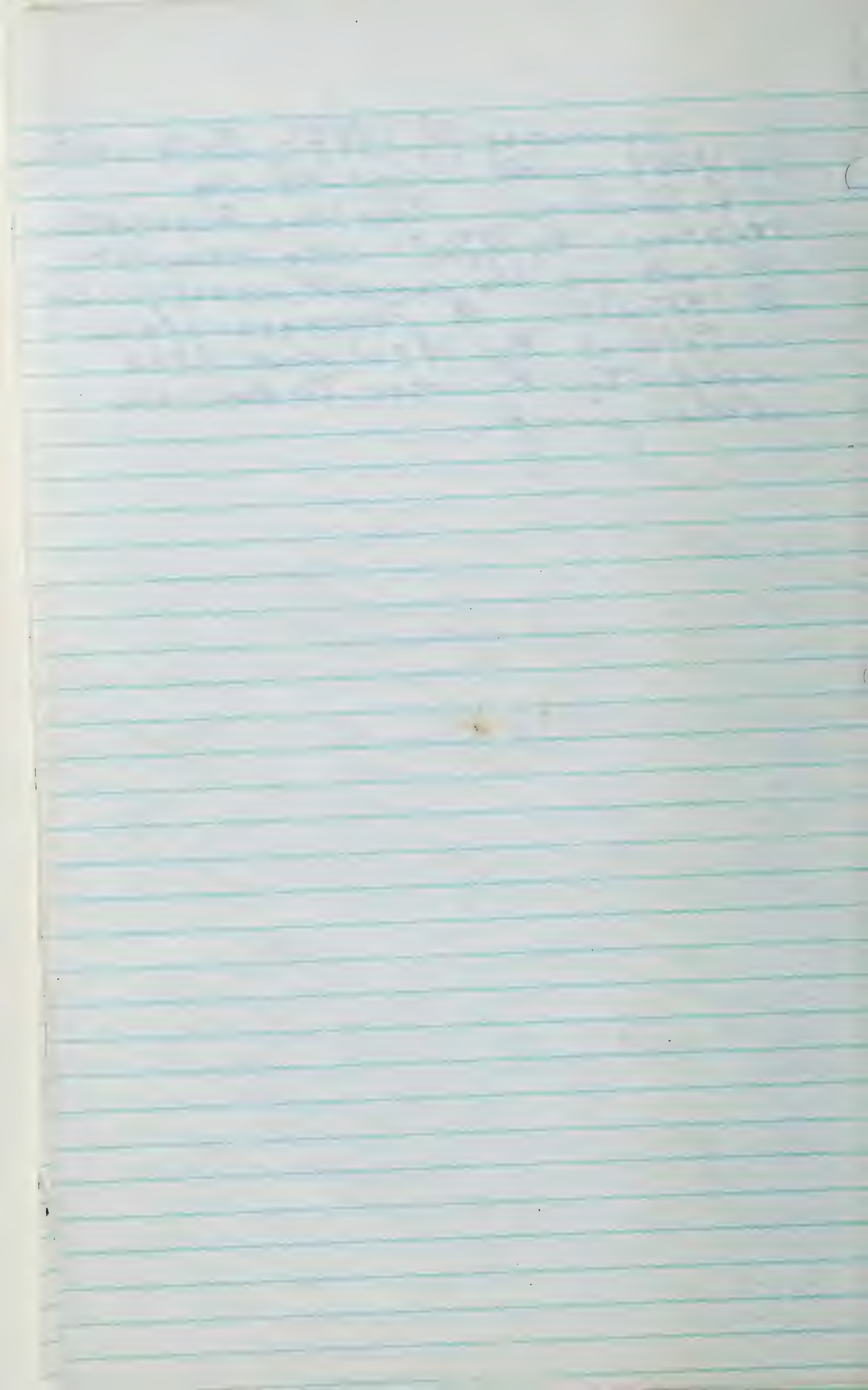
Today.	7:20 A.M.	— — — — —	69°F.
	1:30 P.M.	— — — — —	80°F.
	8:00 P.M.	— — — — —	69°F.



January 10, 1927 - *Reithrodontomys*
No. 12328 and *Peromyscus* Nos. 12331,
12334, 12335, 12336, 12337, 12338, 12339, &
12340, were caught by G. D. Stinton
at an altitude of 4300 feet on the
volcano. For association see his
notes. *Peromyscus* No. 12329 was
caught in a ravine at the edge
of the jungle, another No. 12330
was caught at the base of a
leaning tree in the dense
jungle. *Tylomys* Nos. 12332, and
12333 were caught on horizontal
limbs in dense jungle at an
altitude of 1900 feet. Another
Uromys was taken in the young
coffee today, No. 12341. *Peromyscus*
Nos. 12342, and 12343 were caught
in a shady ravine at the edge
of the coffee. Another No. 12344
was caught in the young coffee
near by.

January 11, 1927 -
Peromyscus Nos. 12345 to 12352 inclusive
were taken by G. D. Stinton at
4300 feet altitude. *Uromys* No. 12353
was caught in the corn field at
1900 feet by me. *Artibeus* Nos.
12354 to 12358 inclusive were
shot by me where I found
them to the under side of a
huge flat lava rock in a
shady ravine.

January 12, 1927 - Reithrodontomys
No. 12359 was caught by
J. D. Stinton. Another immature
oryzomys No. 12360 was caught
by me in the small corn field
at 1900 feet. A Peromyscus and
a Tylomys Nos. 12361 and 12362
respectively were taken in
dense jungle.



1927

~~77~~

~~January 13, 1927~~

January 13, 1927 - Today we packed our material and prepared to leave the volcano. We went to bed early as we had to get up at one o'clock to catch our train.

January 14, 1927 - While walking down the volcano at about two o'clock in the morning we heard a noise in the brush at the side of the trail. We flashed our electric lights in that direction and saw an Anteater ~~at~~ No. 12364, climbing a small tree. I approached within ten feet of it and fired into its ribs with a .410 shot pistol which had no effect on it. We then dragged it out of the tree by its tail and killed it by standing on its ribs. It clawed furiously.

January 15 - 20 were spent going to San Salvador and from there to Colima, Dept. Acatlan. José M. Morales killed another Anteater No. 12365 at El Carmen in Dept. La Unión, on the 17th of January.

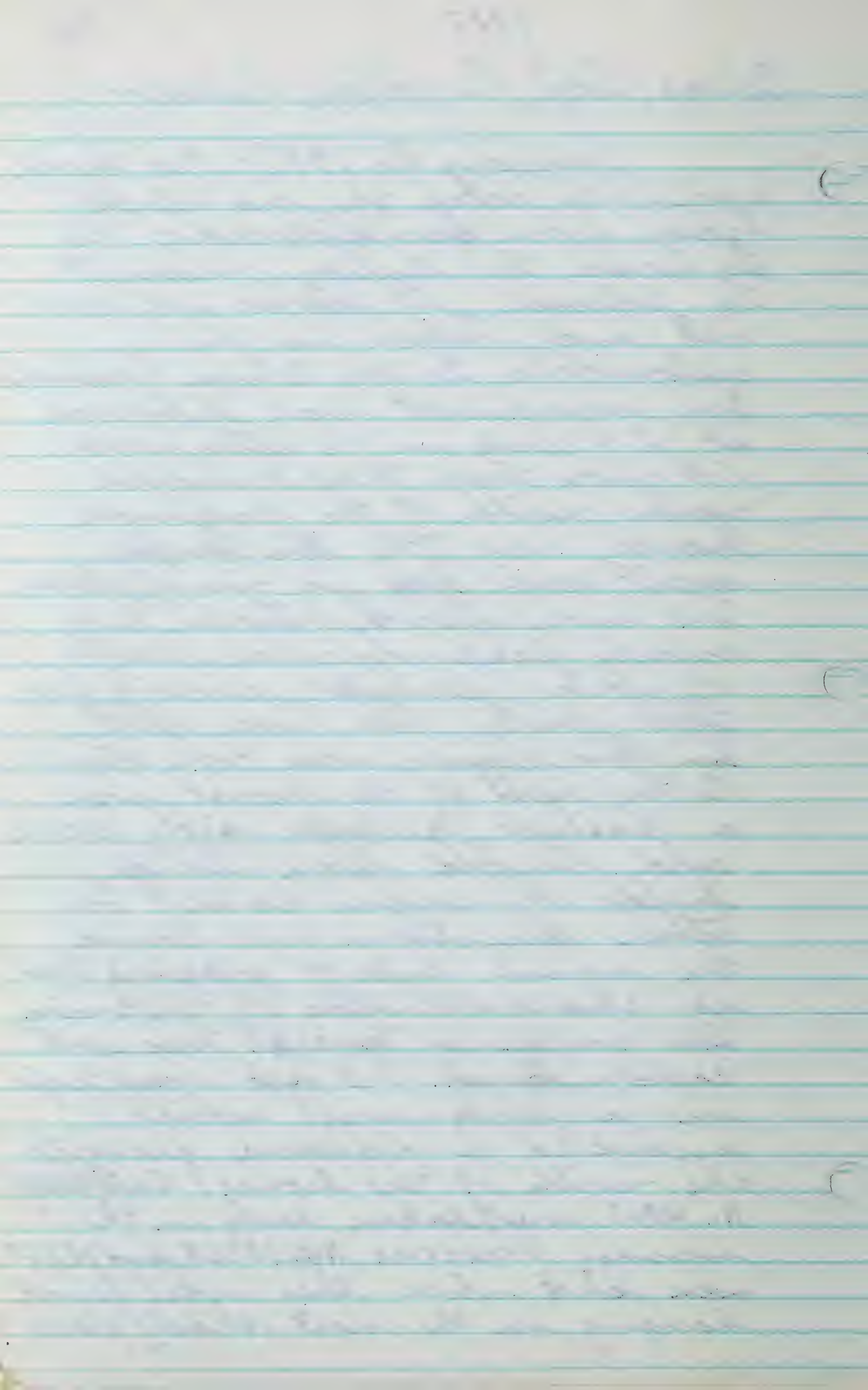
$$\begin{array}{r} 1125 \\ 2 \overline{) 2250} \\ \underline{2250} \\ 0 \end{array}$$

1927

P.I.

Colima, Dept., Cuscatlan, Salvador

January 20, 1927 - We arose early to catch the six o'clock train from San Salvador to La Torna the station nearest to Colima. At La Torna we were met and taken in an automobile to the Colima hacienda. Our equipment was delivered at 2 o'clock in the afternoon. Not more than three hundred yards north of the hacienda house was the Rio Tempa swift and deep in many places. The river flowed between two nearly perpendicular walls of rocks perhaps seventy five feet high. The river flat in this region was very extensive. To the east of the house was a pasture, perhaps sixty acres, and beyond were large fields of sugar cane. In other directions we found the usual type of grazing land so characteristic of the country. This contained "quacal" trees and carbon brush. I set snap traps in a rock wall which encircled a banana grove to the north of the house. ^{Bats} Scotomys No. 12367 was taken early in the evening. Uroderma Nos. 12368 and 12369 were shot where they were found hanging in the most shady places.



1927

P. 2

Colima, Dept., Cuscatlan, Salvador
under banana leaves. During
the evening our native assistant
knocked down *Rhogeessa* No. 12366
as it flew along the corridor of the
hacienda house. Another was
knocked down but it escaped
before he could catch it.

January 21, 1927 - A trap
which I had set at the edge
of some brush and a weedy
field had a *Sigmodon* this
morning, No. 12374. Yesterday I
saw a *Sigmodon* running about
under the weeds near where I
placed my trap. It ran
about very much like a young
rabbit. Another *Sigmodon* was
caught near here but the
trap mired it for a specimen.
The weedy field which I
spoke of was an old bean field.
An *Oryzomys* No. 12375 was
caught in the rock fence or
stone wall where I caught
the ~~*Scotinomys*~~ ^{*Batomys*} yesterday. This
wall was about four feet
high and three feet wide.
Uroderma Nos. 12376, 12377, and
12378 were shot in the banana
grove today. A *Centuro* No. 12379
was knocked by our native
helper on the house corridor
this evening.

1927

P.3

Colima, Dept., Cuscatlan, Salvador

January 22, 1927- ^{Baiomys} ~~Scotinomys~~
Nos. 12382 and 12383 were caught
in the stone wall. The ants had
gotten to them before I arrived
therefore skeletons had to be
made of them. Another
Siomodon No. 12384 was taken
at the edge of the old weedy
bean field. A Uroderma No.
12385 was taken in the
banana grove today.

January 23, 1927- The
only specimens taken by me
today were ~~Scotinomys~~ ^{Baiomys} No. 12386
and Cryzomys No. 12387. These
we caught in the rock wall.
It was impossible to bait
my traps because natives
were watching every move
I made. It was pay day
and there were about 250
people about the place.

January 24, 1927 - Saccopteryx,
Nos. 12391 and 12392, were shot in
a hollow tree about a mile to
the east of Colima and on the
south bank of the Rio Tempa.
There were about a dozen in
the tree. There is a swamp

1927

P. 4

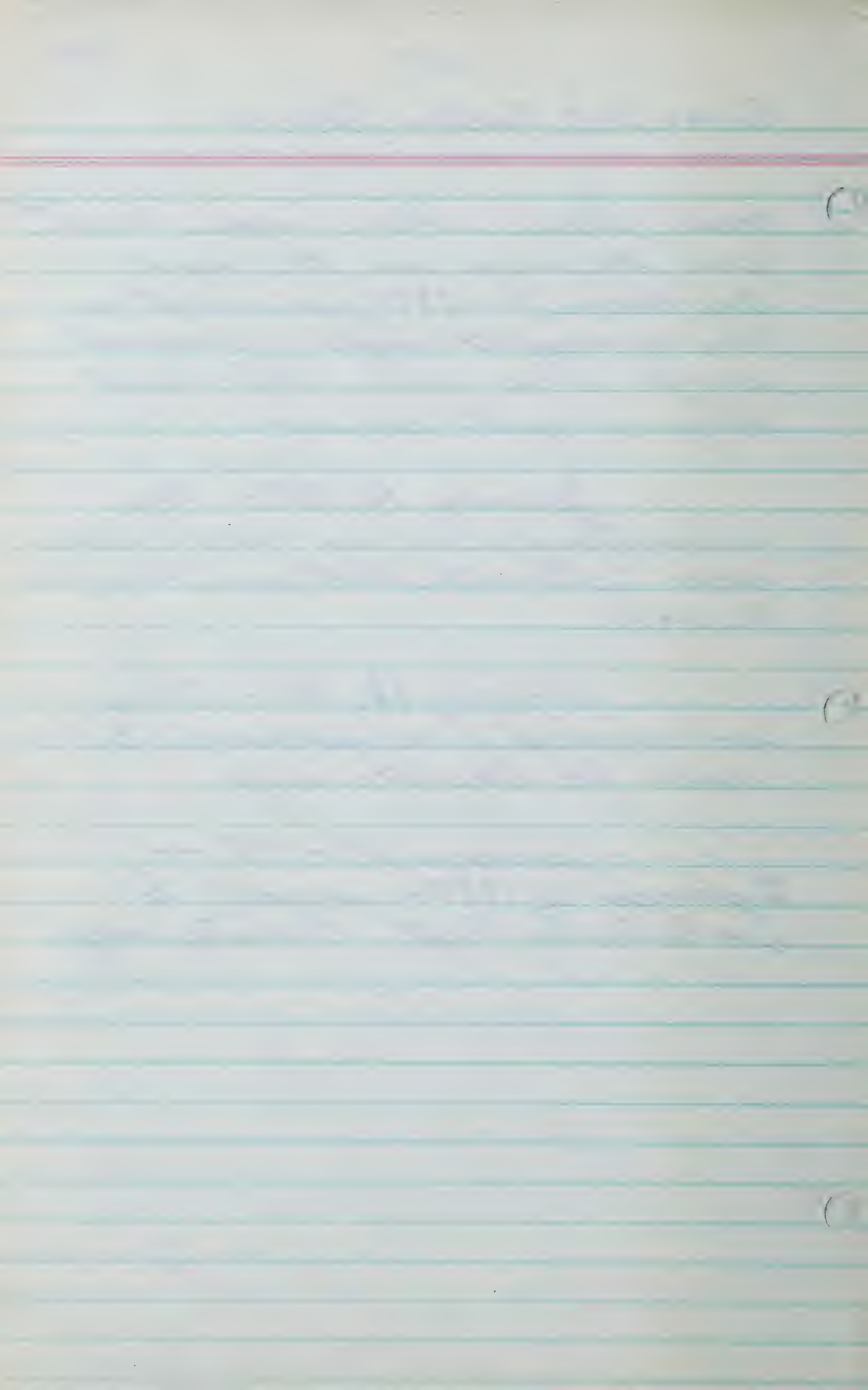
Colima, Dept., Cuscatlan, Salvador

near here where many *Raccoon*^{tracks} can be seen in the mud.
One *Procyon*, No. 12395, was shot in the swamp at night. Several *Procyon* were taken last night they are quite common.

January 25, 1927 - The interesting records made today were *Spilogale*, No. 12402, and *Peromyscus* No. 12406.

January 26, 1927 - Today we packed and prepared to leave for Chalatenango.

January 27 - 1927, -
February 2, 1927 - enroute to
Los Esmeriles, Dept., Chalatenango.



1927

P.1

Los Eses miles, Dept., Chalatenango, Salvador

February 1, 1927- At nine o'clock this morning we left La Palma for the region of Los Eses miles, thus called by natives of this part of the Department of Chalatenango. Los Eses miles, the highest point of which is near the Honduranian and Guatemelian borders, is a northern point of land ^{of the republic} just east of the Rio Lermpa and is probably the highest ^{mountain} point in Salvador. We were able to secure only two pack animals and so had to go on from La Palma leaving half of our equipment behind, and ourselves "footing it." We soon reached a red clay dirt after leaving the chalky trails behind at La Palma at an altitude of 9450 feet. The trail snaked back and to on the steep ridge as we climbed on. At times we were in pines then as we would twist around to the south slope we would enter oak like brush mixed with fewer and smaller pines. About ~~two~~ thirty P.M. we stopped to take lunch in a small native hut where they grew small patches

1. The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom.

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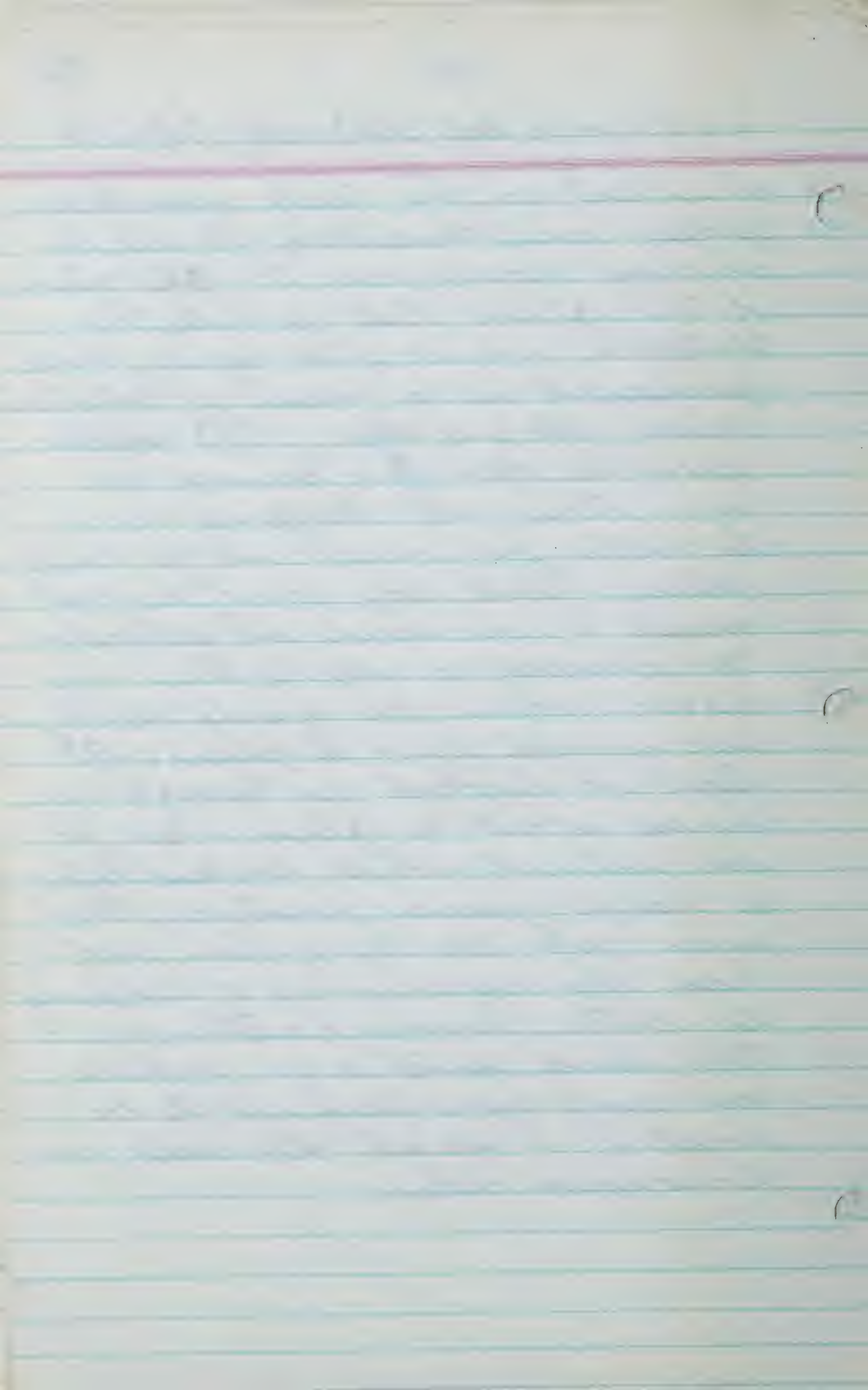
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1927.

P. 2

Los Esesmiles, Dept., Chalatenango, Salvador

of wheat on the steep mountain slopes and thrashed it out by driving horses over it. The man of the place led us into the kitchen where his squaw had prepared us a meal of "tortellias" cheese, milk, and coffee. The smoke from the open fire burned our eyes thus not helping much to better our vision in the dark place. That was one of the best meals I ever had in Salvador. We climbed on up to the ridge above where our guide said we would find a plain. At first it looked as though he knew what a plain was, for we entered what looked like a large grassy pasture, that was not too irregular and had the appearance of leading to better plains farther on. The land farther on, where our camp was destined to be located, I shall describe in tomorrow's notes.

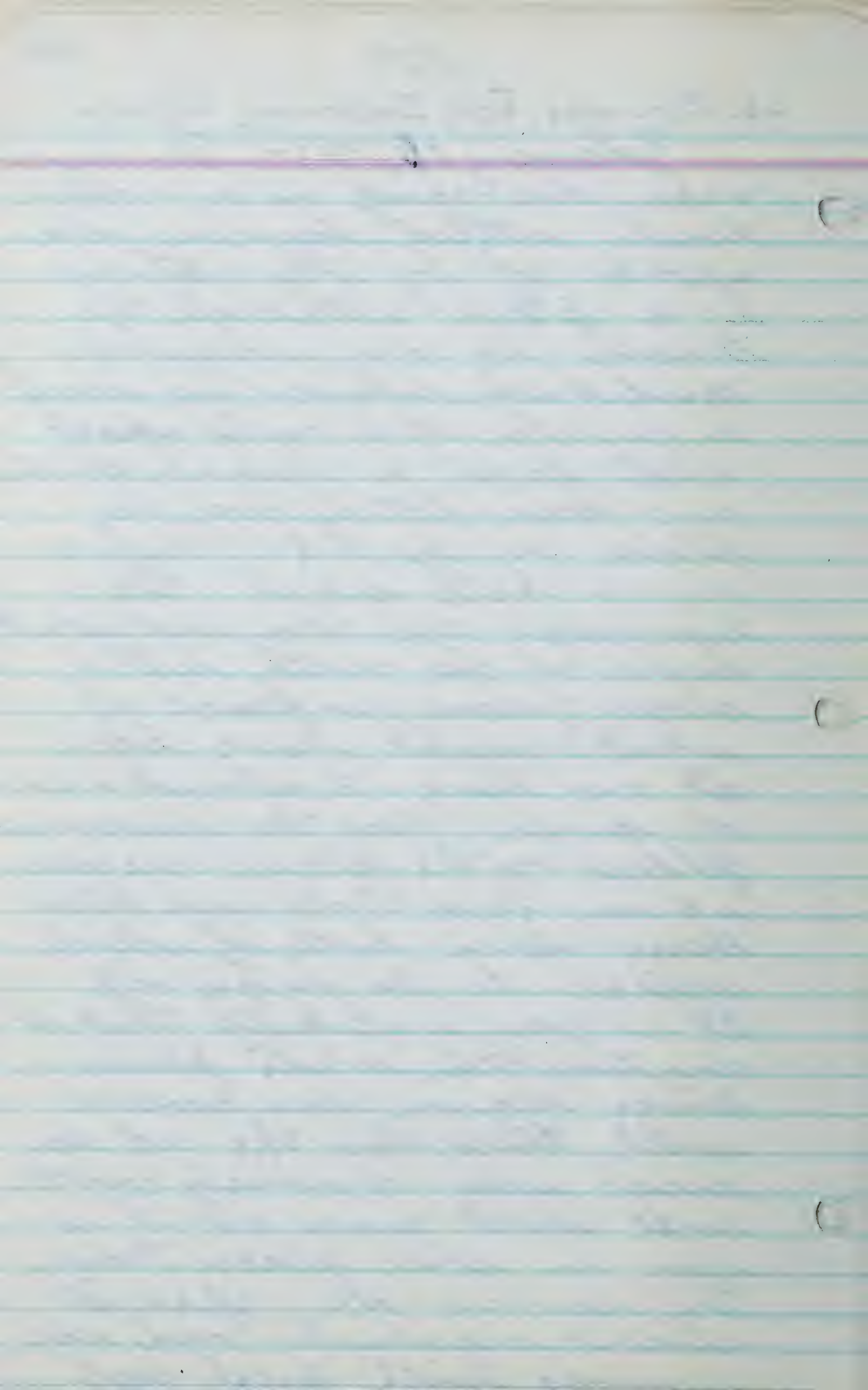


1927

P. 3

Los Eses miles, Dept, Chalatenango, Salvador

February 20, 1927 - The region near our camp is a rather densely settled farming area spoken of by the natives as a plain although the terrain is very irregular. Mud brick houses are about a quarter of a mile apart, and from a higher elevation are seen dotted over the plain on the top of ridges or on hill sides. The two crops are corn and wheat. Some of the north hill slopes show evidence of what might have been at one time timbered areas of pines. Now the unoccupied places on the plain are grown up in fern beds and black berry vines both of which appear to be dying out. It is very unlikely that at any time the whole plains or lower region was covered with trees; this the red clay areas was obviously covered with short grass as it is seen in some places today. The ravines are spaced almost regularly and are running with fresh cool

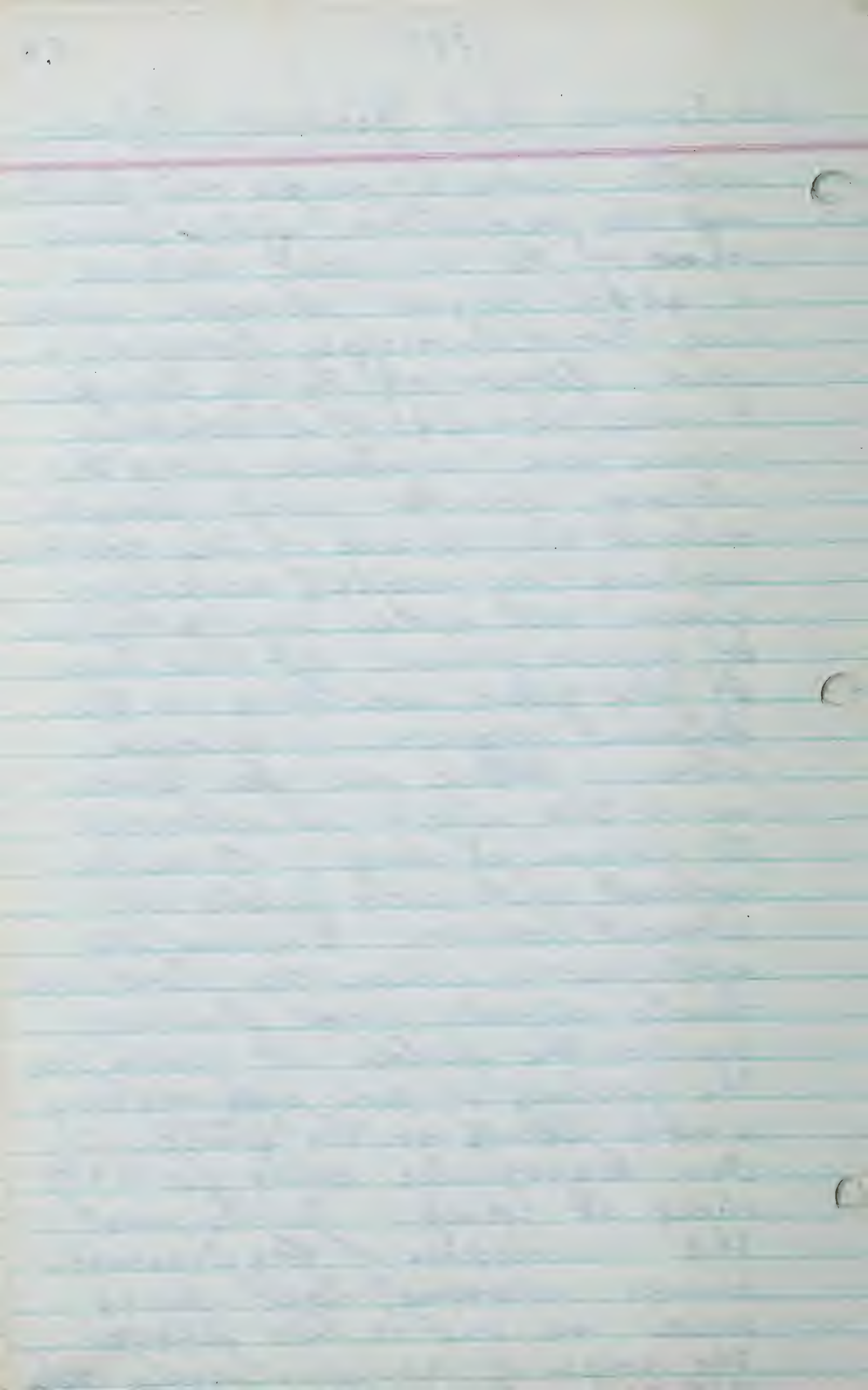


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water which seeps out farther up the mountain sides and runs off to the east where a good sized stream makes the Honduranian boundary and flows off to the Lempa. Dense clumps of blackberry vines are common along the stream banks and usually about the head of the ravines where the water seeps in from all sides are patches of green grass. At this time of the year everything in the plains region is grazed close. There are few fences and the stock is allowed to roam at large. Even the wheat and corn fields are almost barren. During the afternoon when the slow and misty clouds come driving across the fields it gives one the feeling of an approaching snow storm in the States. Our Barometer calls for 6400 here at camp. To the west the mountain of Los Esesmiles arises showing tall pines and in one or two places the edges of rainy or misty oak regions.

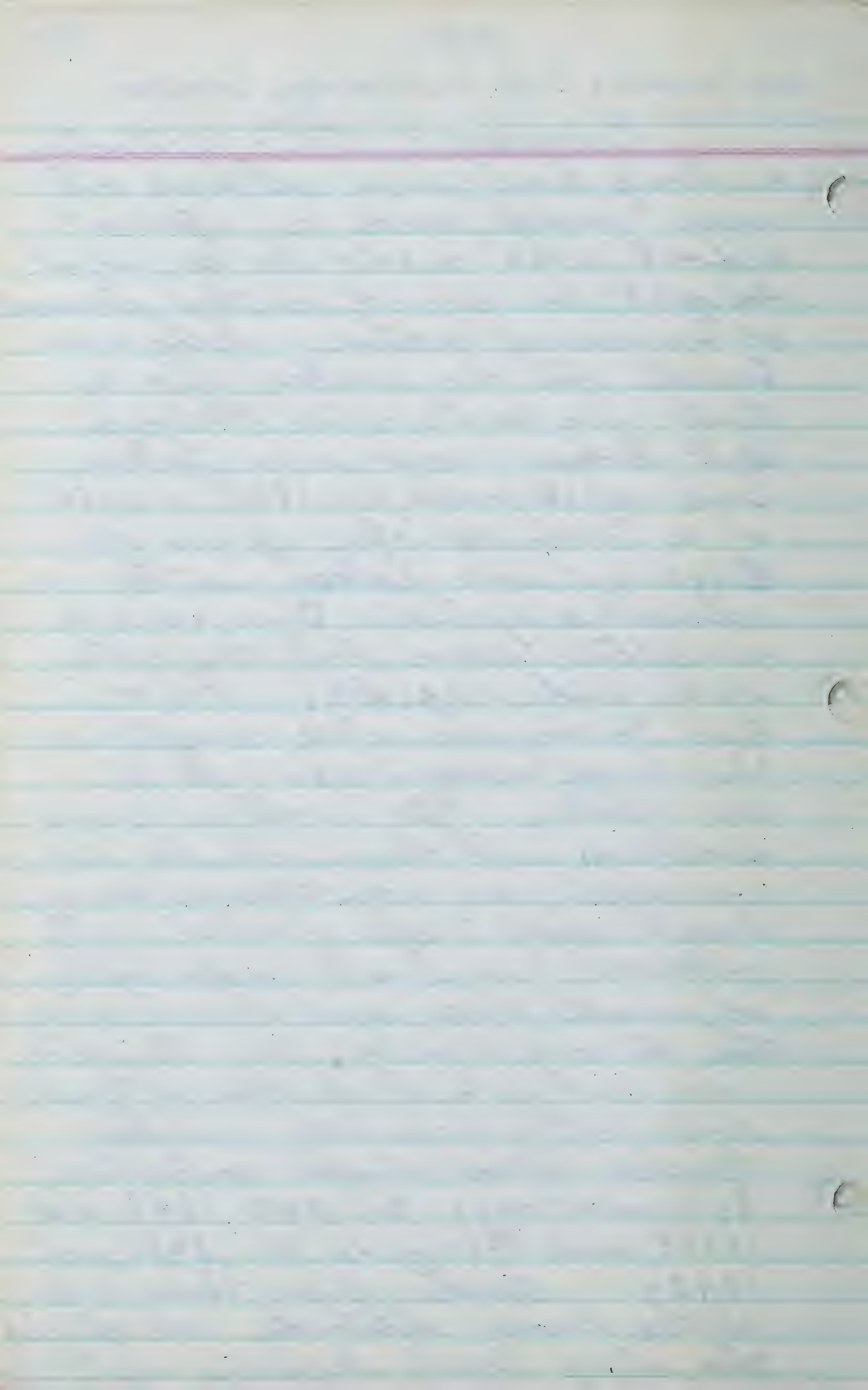


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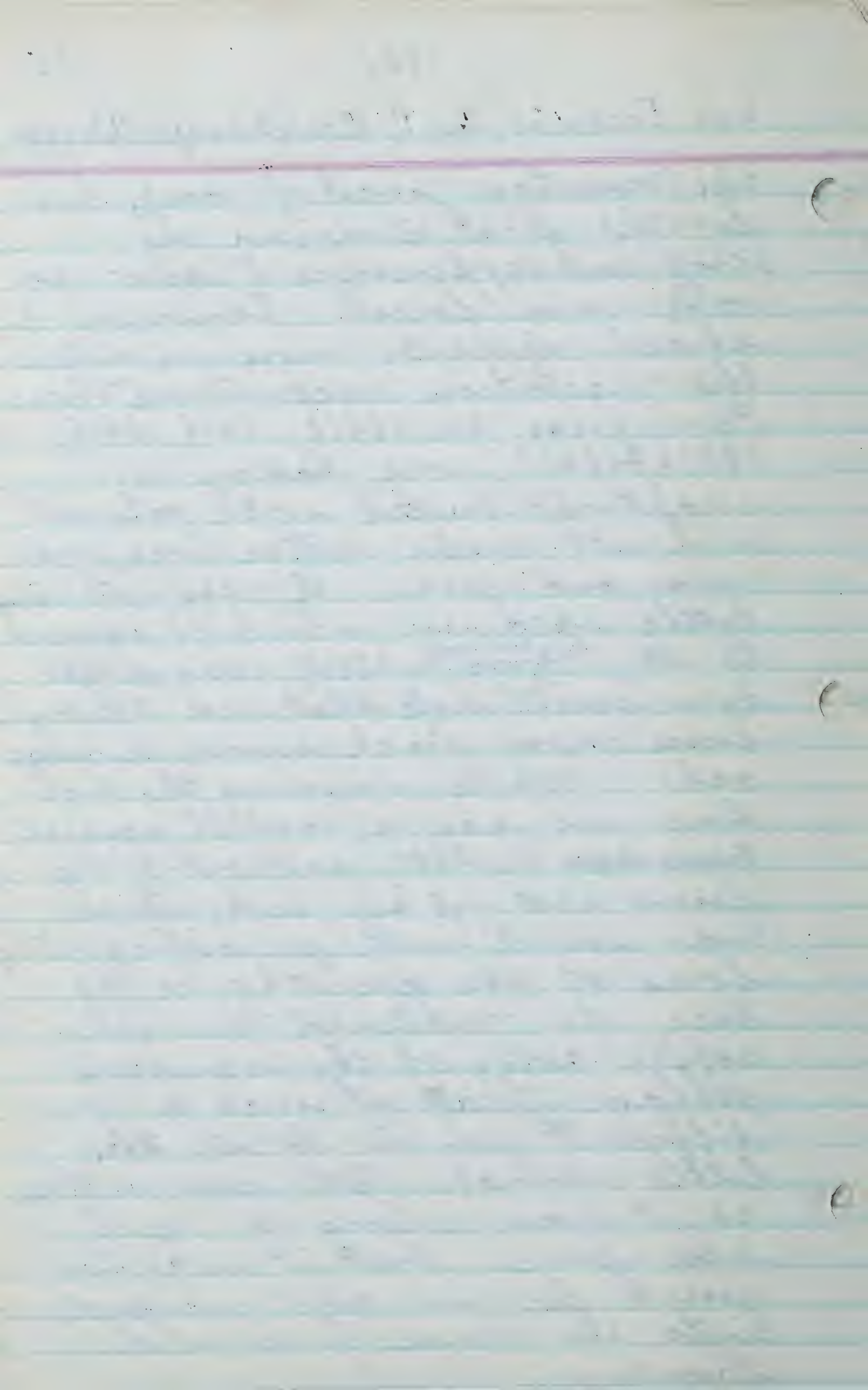
February 3, 1927 - Yesterday a trap line was strung out near camp, and a special effort was made to see what might be found in the streams of running water. Sets were made in the water for a test for water mice *Reomys*. But today none were taken. Two specimens, Nos. 12418, and 12419, of a semiaquatic species of *Dryzomys* were taken in the running water. This was a small stream but the water ran quite rapidly. One or two *Peromyscus* were caught in the large snap traps set in the water. As well as being soaking wet their skulls were crushed, so were thrown away. Small snap traps baited with oatmeal were set under roots of small trees and brush along the stream banks. The stripped corn and wheat fields extended down to the sparsely brushy banks. These traps contained *Reithrodontomys* Nos. 12420, 12421, and 12423, and *Peromyscus* Nos. 12422, and 12424. Aside from these sets at the lower altitude we climbed the steep trail leading up to



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the mountain west of camp, here
for the first time in my
tropical experience I saw an
oak rain forest. Tomorrow I
shall describe more in detail
the vegetation encountered there.
Peromyscus Nos. 12412, 12414, 12415,
12416, & 12417 were taken in
snap traps baited with oatmeal
and set under rotten logs, under
moss, and ferns. A very interesting
little specimen which I assume
to be ^{P. J. Scotinomys} ~~Pitymys~~, No. 12413, was caught
by a small hole that led through
some moss back under a huge
oak. While running the trap
line we saw a small squirrel,
Sciurus leoppei No. 12425, dash out of the
ferns and up an oak, which
was covered with parasitic growths.
Some of the growths on the
tree so matched the rich
coffee color of the squirrel's
pelage that it was a very
difficult job to locate the
little animal. We saw another
as it ran along a rail
like fence but it was too
quick for us and escaped
into the dense ferns and
brush.

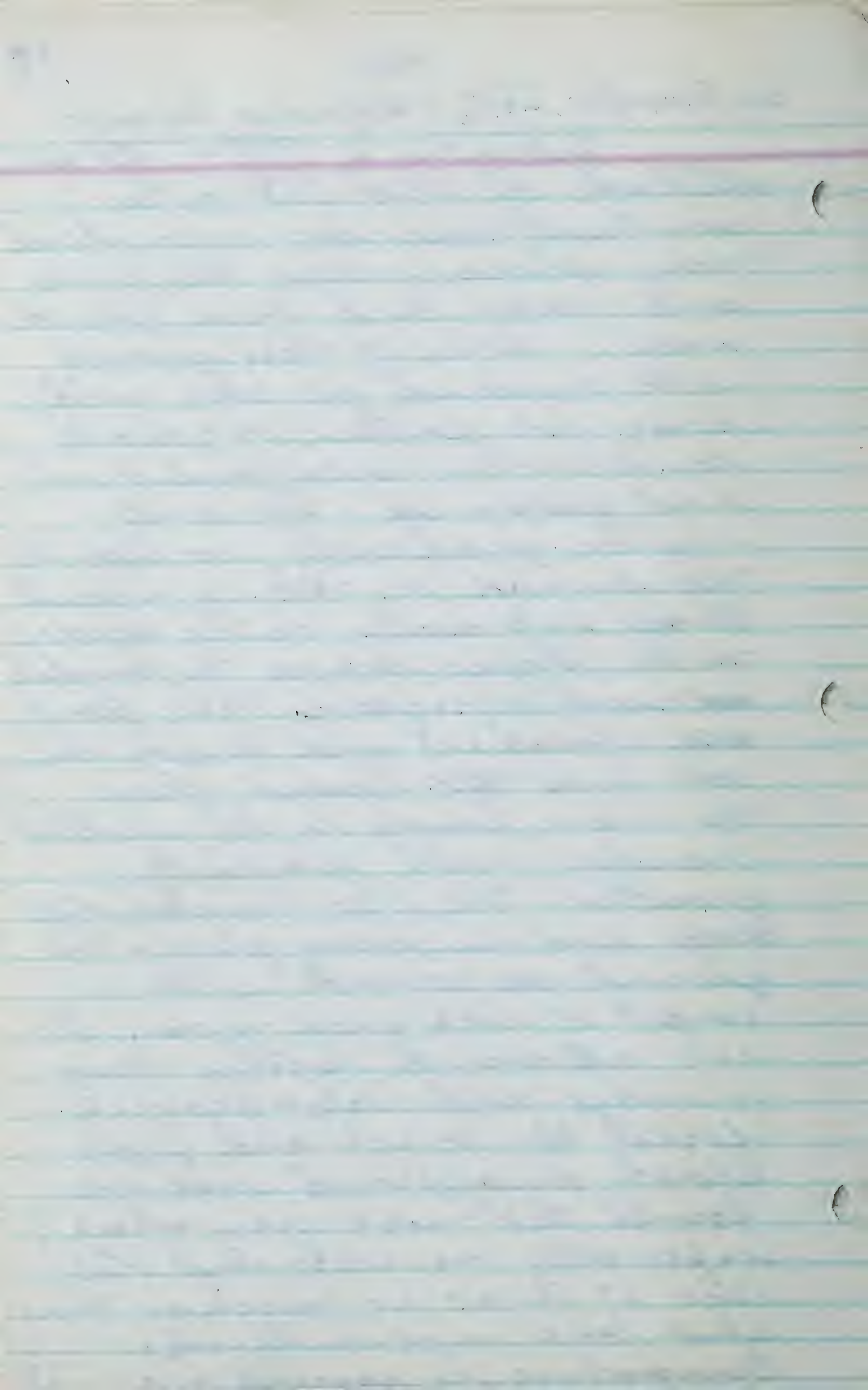


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February 4, 1927 - At an altitude of 7500 feet on the mountain side we encountered many places where the pines and oaks had been cleared away. Some of this ground was occupied for corn fields, some for pasture or vacant land where grass and brush had grown up. The arid region gradually worked into the humid or oak rain forest. It was especially on the wooded north slopes where the humidity was most noticeable, there ferns were abundant and heavy, the oak trees were loaded from the main trunk to the smallest branches with parasitic growths. The tree trunks, old logs, and in many places the ground was covered with a carpet of rich green moss. As we advanced farther along a ridge and into a heavier forest the brush and ferns slowly disappeared and we found the moss everywhere, especially on roots and old logs it was as much as three and four inches thick. Everywhere the ground was wet



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and in some of the gulches on the north slopes water dripped from the leaves above. At 11:30 A.M. today clouds of heavy mist commenced to pass through the trees on the higher points and by 2:30 P.M. they were down the mountain side at an elevation of 7000 feet. Day before yesterday we strung traps from the edge of the oak rain forest well into the region vacated by ferns and underbrush. A small snap trap set under a semi-rotten log among ferns and dense brush caught a *Reithrodontomys*, No. 12429. The trap was set on some dead moss by a little round hole led back ^{further} under the log. *Pitymys* ^{*Scotinomys*}, No. 12430, was caught under a rotten log in a dense patch of ferns. Another, No. 12431, was caught at the base of a small tree in the ferns. There were several small holes that led back under some dead fern leaves and trash at the base of this tree and it was by one of these holes that I set the trap. A *Heteromys* No. 12432 was caught in a

Dear Mr. [Name] [Address] [City] [State] [Zip]

I am writing to you today to inform you of the results of the [Project Name] which was completed on [Date]. The results show that the [Project Name] was successful in achieving its objectives and that the [Project Name] was completed on time and within budget. The results of the [Project Name] are as follows:

- [List of results]

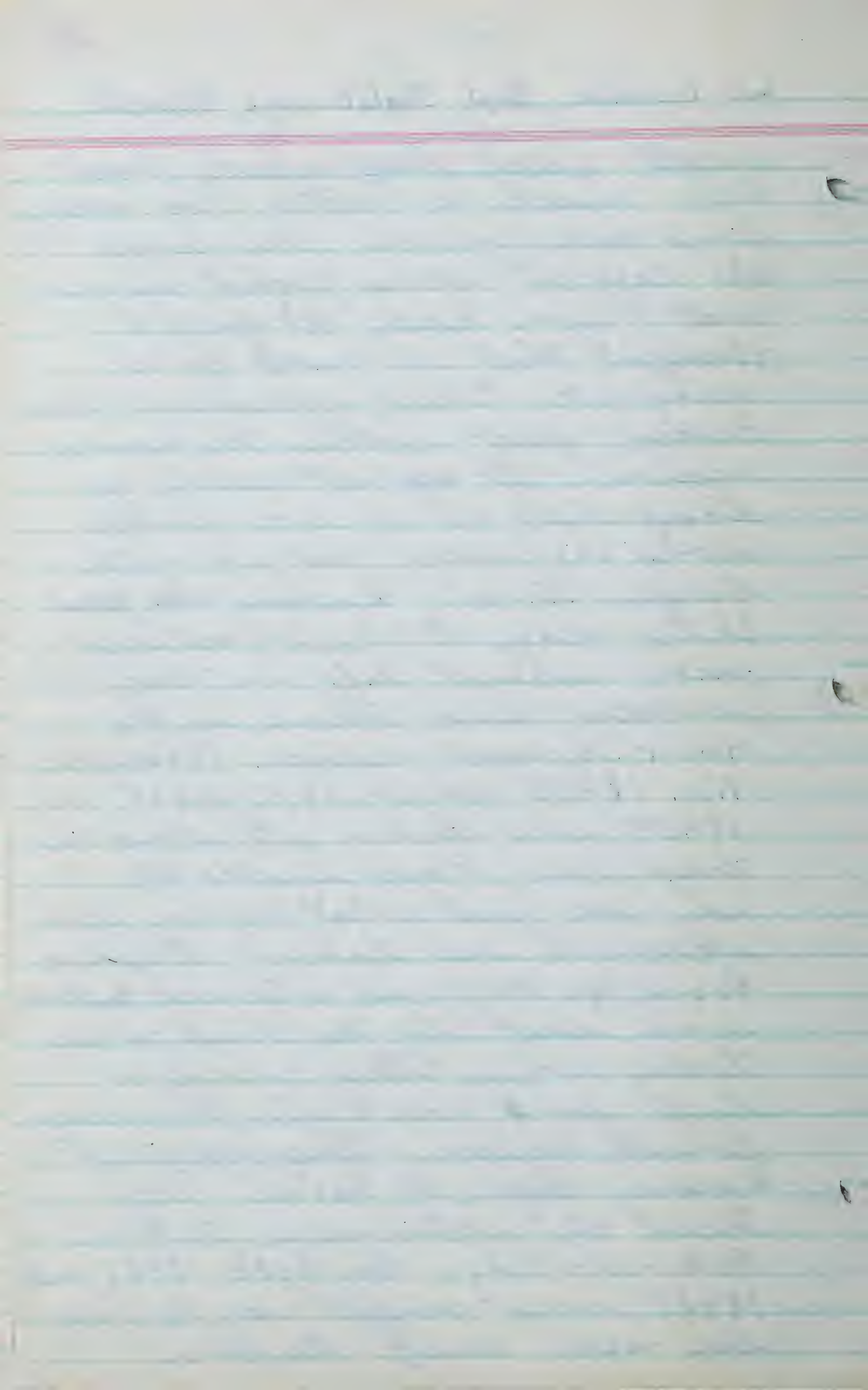
I am sure that you will be pleased with the results of the [Project Name] and that you will be satisfied with the results of the [Project Name]. I am sure that you will be pleased with the results of the [Project Name] and that you will be satisfied with the results of the [Project Name].

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small snap trap which had been under a rotten log among ferns and brush. This was the largest spiny-pocket mouse that I ever saw. At first I thought that it must be a spiny rat. These specimens were taken just within the humid region. It was not nearly so damp here as it was farther along the ridge and among the larger trees. During the past three days I have noticed more animal life in this wooded area than in the more humid region. *Peromyscus* Nos. 12435, 12436, 12437, 12438, and 12439 were taken all along the trap line, I am unable to say in just what region each specimen was taken. A young *Nasua*, No. 12441, and a *Sciurus*, No. 12440, were shot by the bird men today when they made a trip far over into the heavy forest region. They reported many signs of *Nasua*. Dogs breed the specimen taken. *Reithrodontomys* Nos. 12426, 12427, and 12428 were caught on the trap line near camp. Another



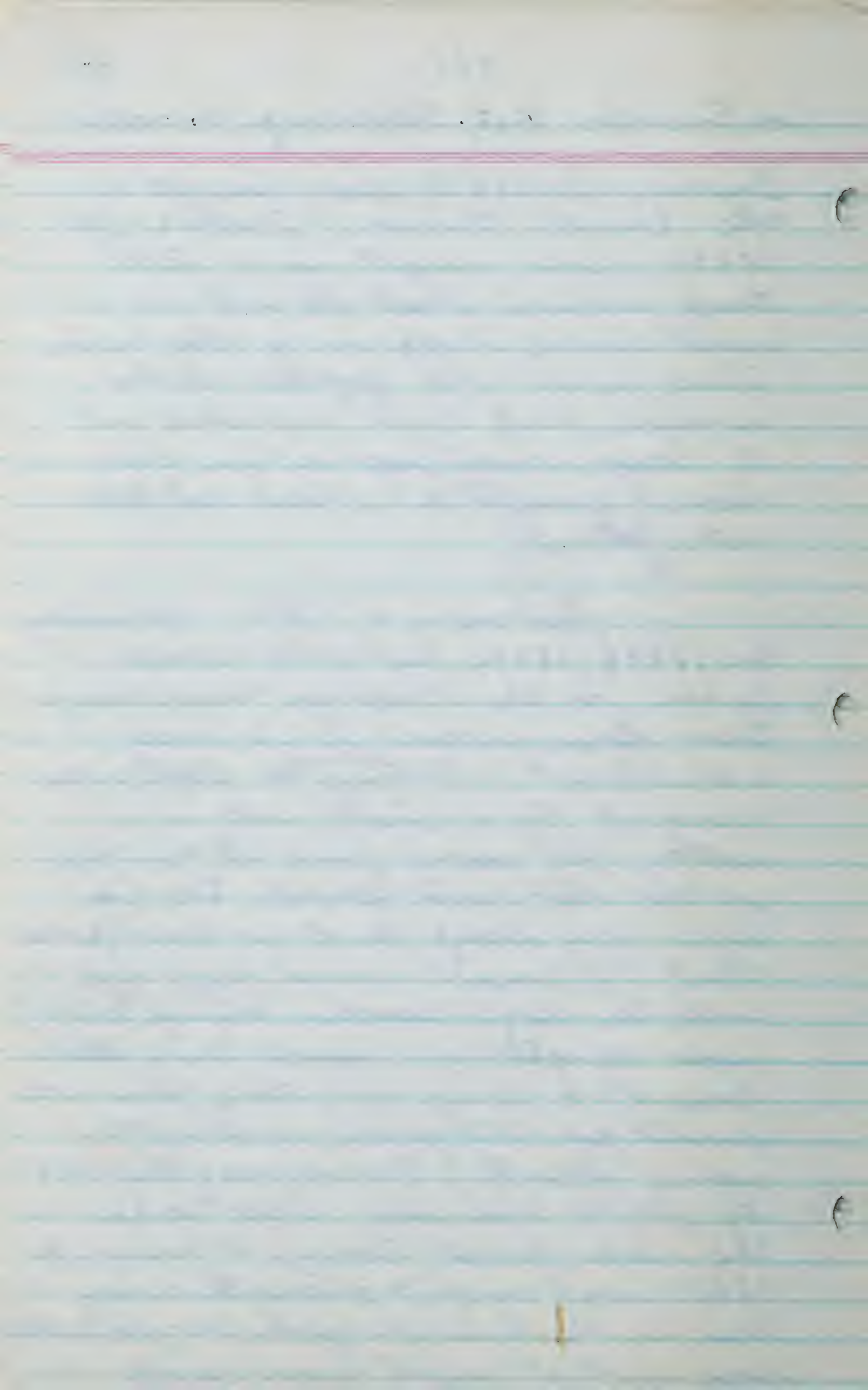
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Oryzomys, No. 12433, was caught in the small stream. *Hidelphis*, No. 12434, was caught in a steel trap which had be set in a well used hole in a clay bank. These were old gopher holes which had been washed out. A large snap trap set in our house caught a black rat, *Rattus rattus*, *rattus*.

February 5, 1927 - *Reithrodontomys* Nos. 12442, 12443, and 12444 were taken on the trapline near camp. This form seems to be very abundant. *Pitymys*^{*Scotinomys*}, No. 12445, was caught by a small hole in a rotten log among ferns at the edge of the oak rain forest. The log was very damp and so decomposed that the small round hole led into the log. Another *Pitymys*^{*Scotinomys*}, No. 12446, was caught by a small hole at the base of a large oak tree, this was perhaps 100 yards within the rain forest. *Peromyscus* Nos. 12447 to 12450 inclusive were taken in the rain forest today. *Heteromys*, No. 12451, was caught among the heavy trees in the humid region. *Urocyon*, No. 12452, was shot at night near camp.

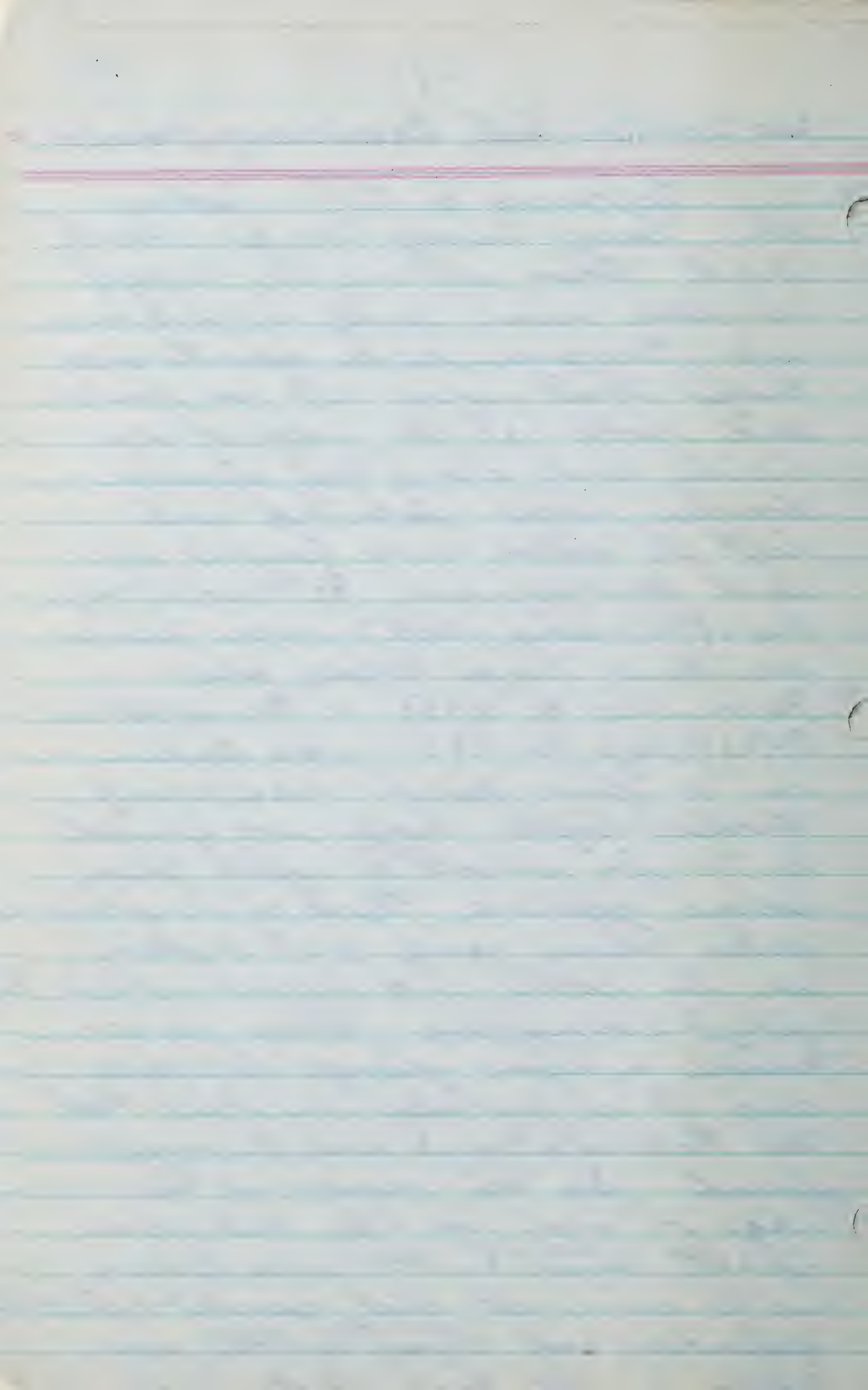


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February 6, 1927 - Today the large snap traps which had been set in the small stream near camp were taken up. However some small snap traps that were set in brush and roots at the edge of corn fields and along the stream banks were rebaited and left to catch more harvest mice and peromyscus. *Reithrodontomys* Nos. 12456 and 12457 were taken in these traps today, also *Peromyscus* No. 12458. An immature *Orthogeomys*, No. 12461, was taken in a fern patch near camp. Macabee Gopher traps, we found to be too small to catch these large gophers. Most of the gopher runs near camp are broken in by cattle and horses which graze everywhere. These runs make a fine refuge for mice and it is probably in these that the *Reithrodontomys* and *Peromyscus* breed. In the region at the edge of and in the oak rain forest, ^{*Scotinomys*} *Pitymys* No. 12454 was taken in the same set that caught No. 12430 yesterday, and ^{*Scotinomys*} *Pitymys* No. 12455 was taken in the trap that had

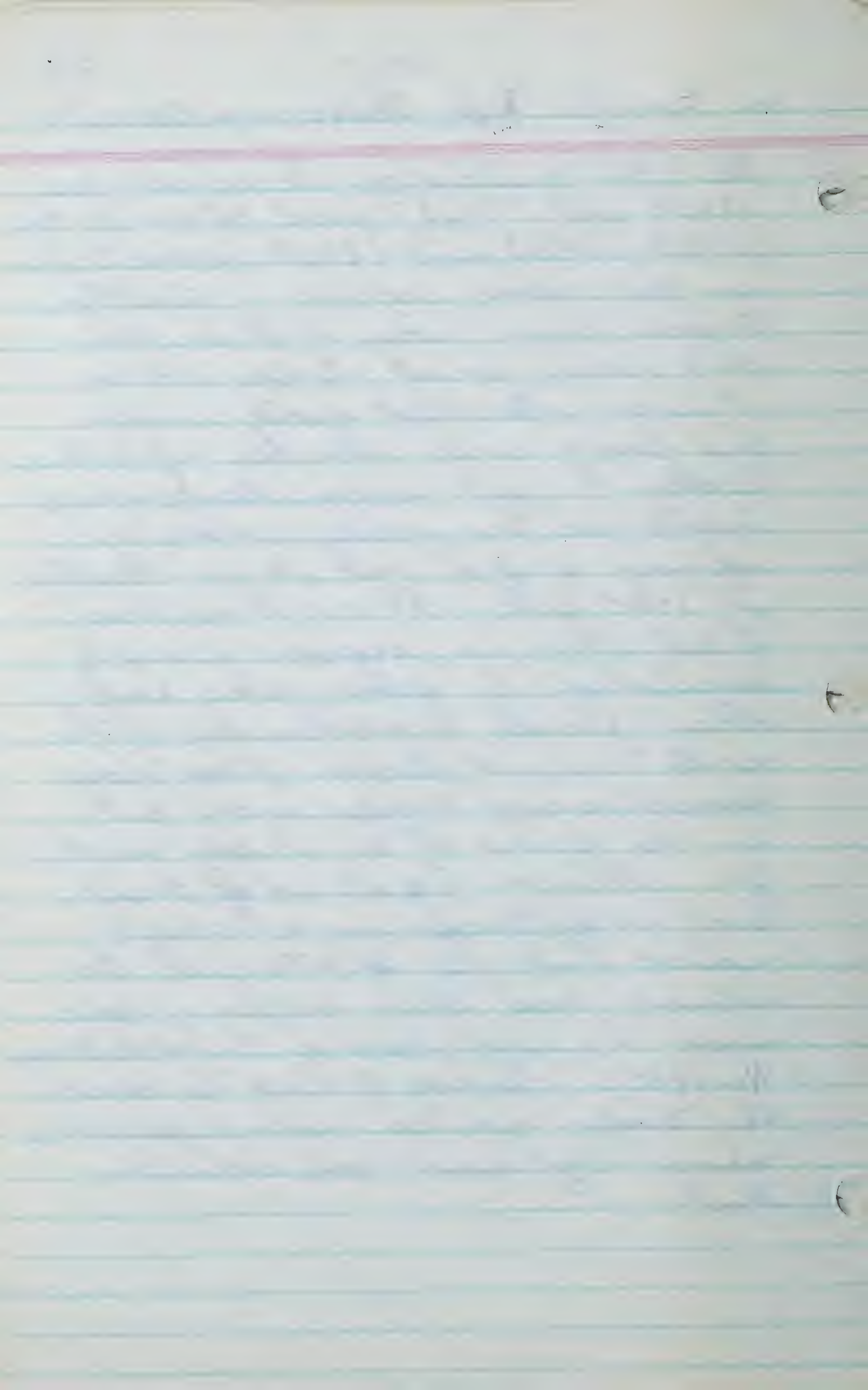


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No. 12431 yesterday. *Peromyscus*, Nos. 12459 and 12465, and *Heteromys* Nos. 12460, 12463, and 12464 were taken in the same region. Another *Sciurus deppei* was shot in the oak rain forest today when it was startled from under the ferns and started up a tree. Today I set seven large snap traps in the water where a spring seeped out at an elevation of 7500 feet. At one time this had been a region densely vegetated by ferns oaks and other plants characteristic of the north humid slopes. Also four small snap traps were set in the ferns of a shady nook for shrews. Yesterday I set two snap traps in a small native hut at 7500 feet. One which had been set on a pole near the roof had a *Reithrodontomys* No. 12453. Today I had to remove the traps for a native prowling near by saw me enter the hut.



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February 7, 1927 - Another ^{Scotinomys} ~~Pitymys~~ was caught in the rotten log where No. 12430 was caught. This makes three mice taken in this set. The number of the one taken today was 12467. Two others No. 12466 and No. 12468 were caught in the same region.

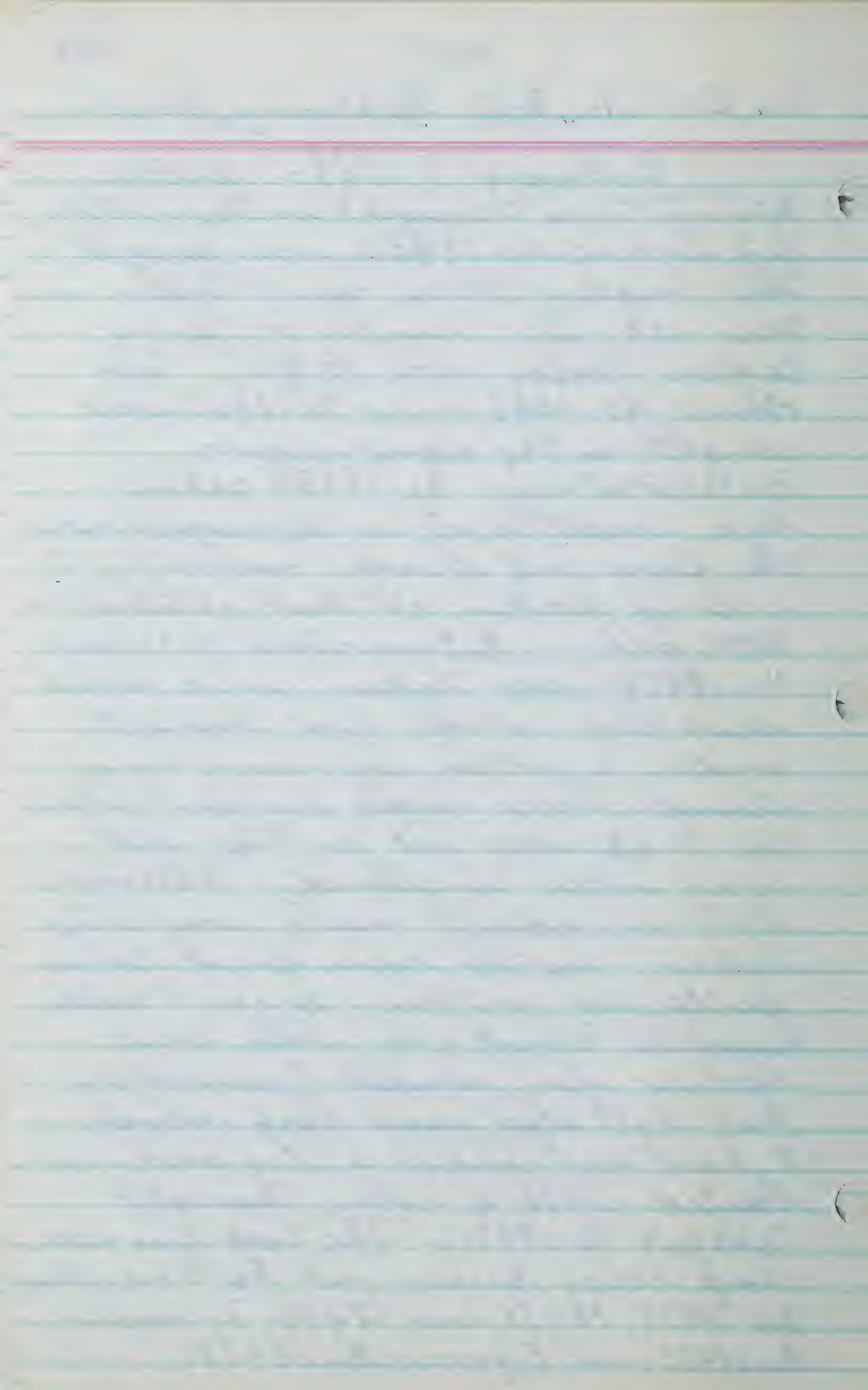
Reithrodontomys No. 12469 taken by a small hole in the moss among the ferns and brush makes the second taken at that altitude - 8000 feet.

An immature Heteromys No. 12476 was taken in a small snap trap which had been set under a rotten log near a large stump. There was dry dirt where the trap was set as the spot was well sheltered. Heteromys

12477 an adult male was also taken in the rain forest today. Yesterday in this region I made several bait sets with bird bodies for small Carnivores.

One No. 1 steel jump trap which I had set under a log and had baited with a robin caught

Spitogale No. 12478. The trap line near camp today turned out Reithrodontomys Nos. 12474, 12471, and 12475. Peromyscus No. 12473, and Sigmodon No. 12472.

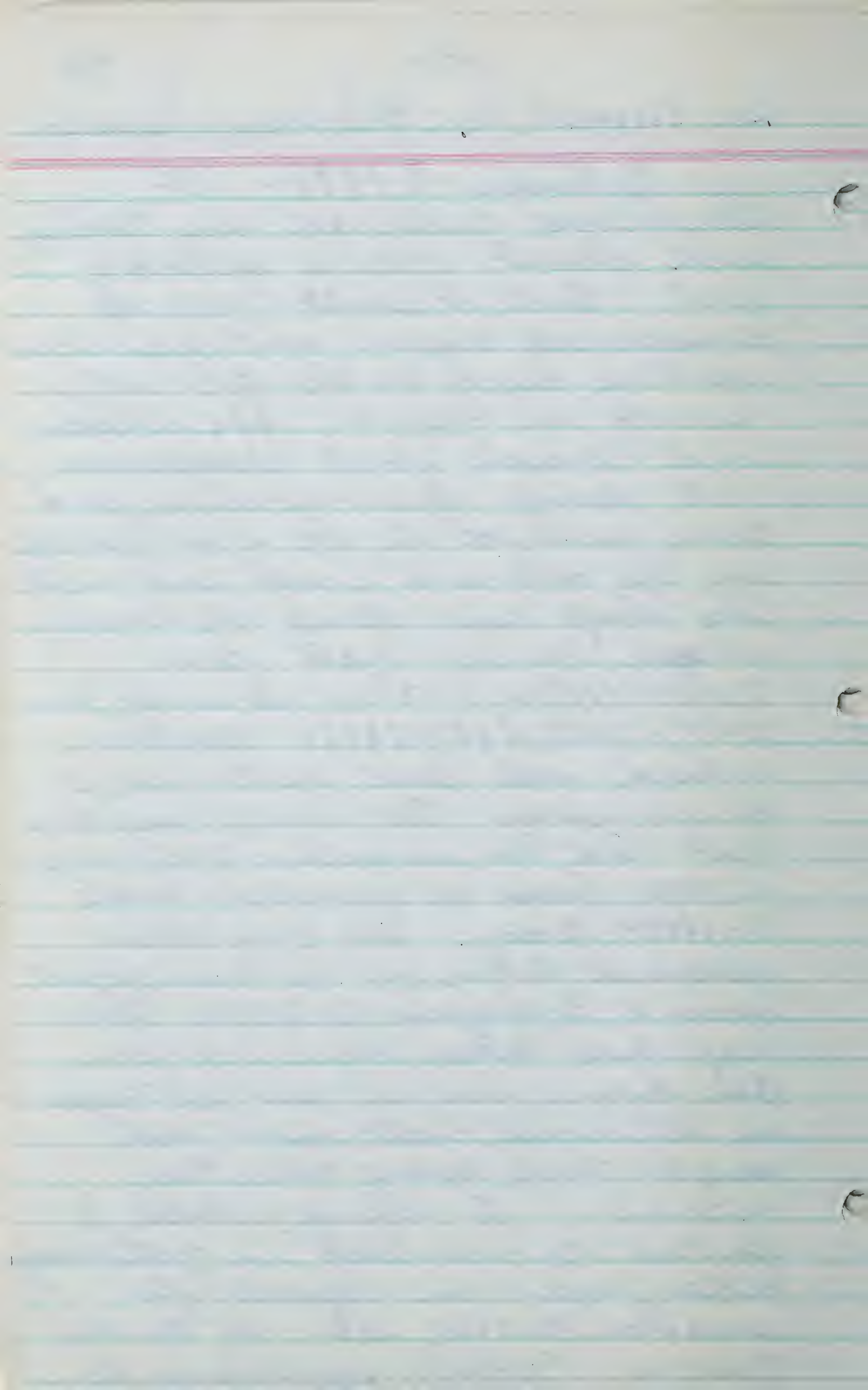


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February 8, 1927 - It threatened rain all day today, and about 4 P.M. a sprinkle fell. And at about 7 P.M. it commenced again and has been spitting away on the tile roof for nearly an hour. The weeds and brush about camp were not damp this morning, and there seemed to be less humidity in the oak rain forest last night. The trap line along the brushy stream banks had four *Reithrodontomys* this morning, Nos. 12479, 12480, 12481 & 12482. Another which ants had destroyed I threw away. The small snap trap that had an immature ♀ *Heteromys*, No. 12476, had an immature male No. 12483 today. The only other specimen taken in the rain forest was a *Peromyscus* No. 12484. This trap has taken three *Peromyscus*. Our house boy set several traps in the house last night and caught three house mice, *Mus musculus*. A thing which I failed to mention in yesterday's notes, was in regard to measles, *Mustela*, seen by Mr. van Rossem. While squeaking to

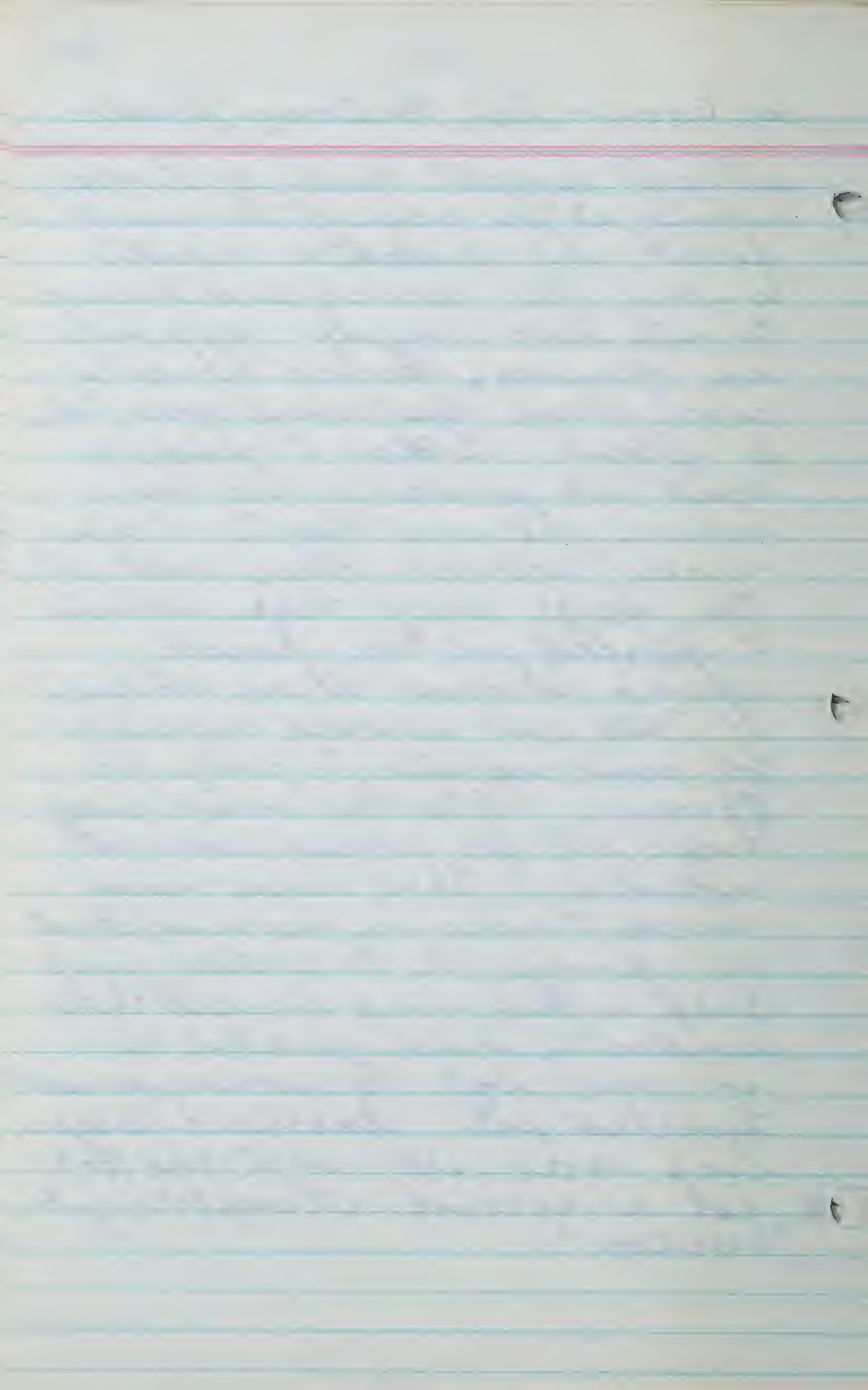


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attract small birds yesterday, while at the edge of the rain forest, he heard a rustle among the leaves and turned to see two weasles pop into an opening. Before he could cover them they were gone like a flash. Today I made a bait set under a log near where he saw them. I also made several other bait sets. The large snap traps which I placed in the small spring streams at an altitude of 7500 feet showed no signs of semi-aquatic *Oryzomys* or *Rheomys*. Also the small snap traps set for shrews were not molested. There were many raccoon tracks in the mud about the springs. A No. 1. steel jump trap which had been set there evidently had grabbed a raccoon but the 'wiley rascal' twisted out. Another larger trap was set with the No. 1 for a second attempt to get "Mr. Coon."

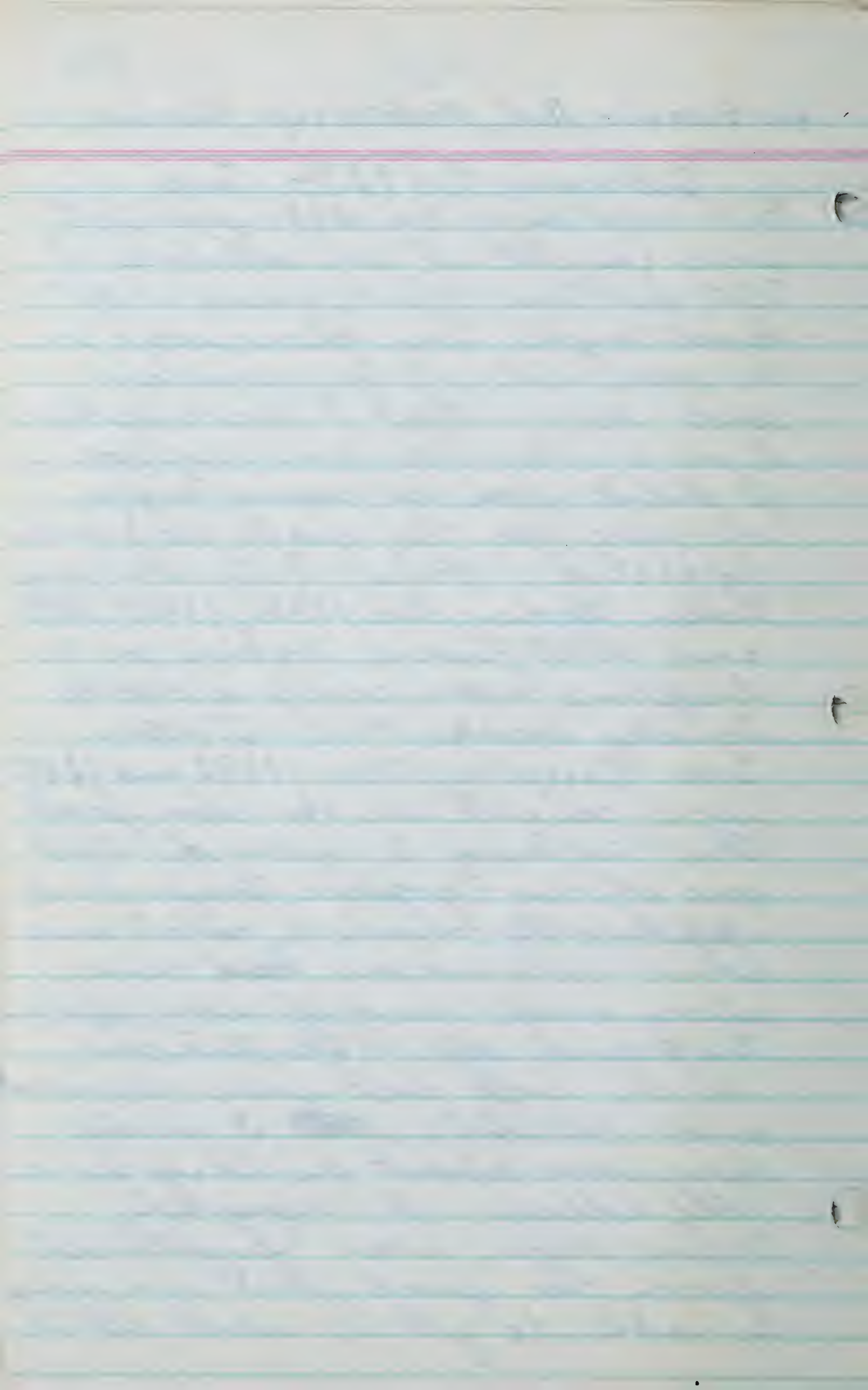


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February 9, 1927- Two
Reithrodontomys, Nos. 12486, and 12487,
were caught at an altitude of
7500 feet in thick grass about
knee high. This place was on
the east side of the mountain
and was what I have spoken
of as a cleared pine region.
I didn't find as many signs
of mice in the grass as I had
expected. Other Reithrodontomys
taken today, Nos. 12488, 12489, 12490,
and 12491, were taken on the
trapline near camp along the
brushy banks of a stream.
Two Conopatus, Nos. 12492 and 12493
were caught in the rain forest.
This morning I found that
one of my gopher traps had
apparently made a catch and
some carnivorous ~~had~~ come
along and dragged away gopher
trap and all. The tracks
in the soft dirt were rounded
and cat like. ~~but~~ I judge
they were about as large as a
half dollar. A squirrel,
Sciurus deppei, was frightened
from the ferns, but we were
unable to get a shot at it.

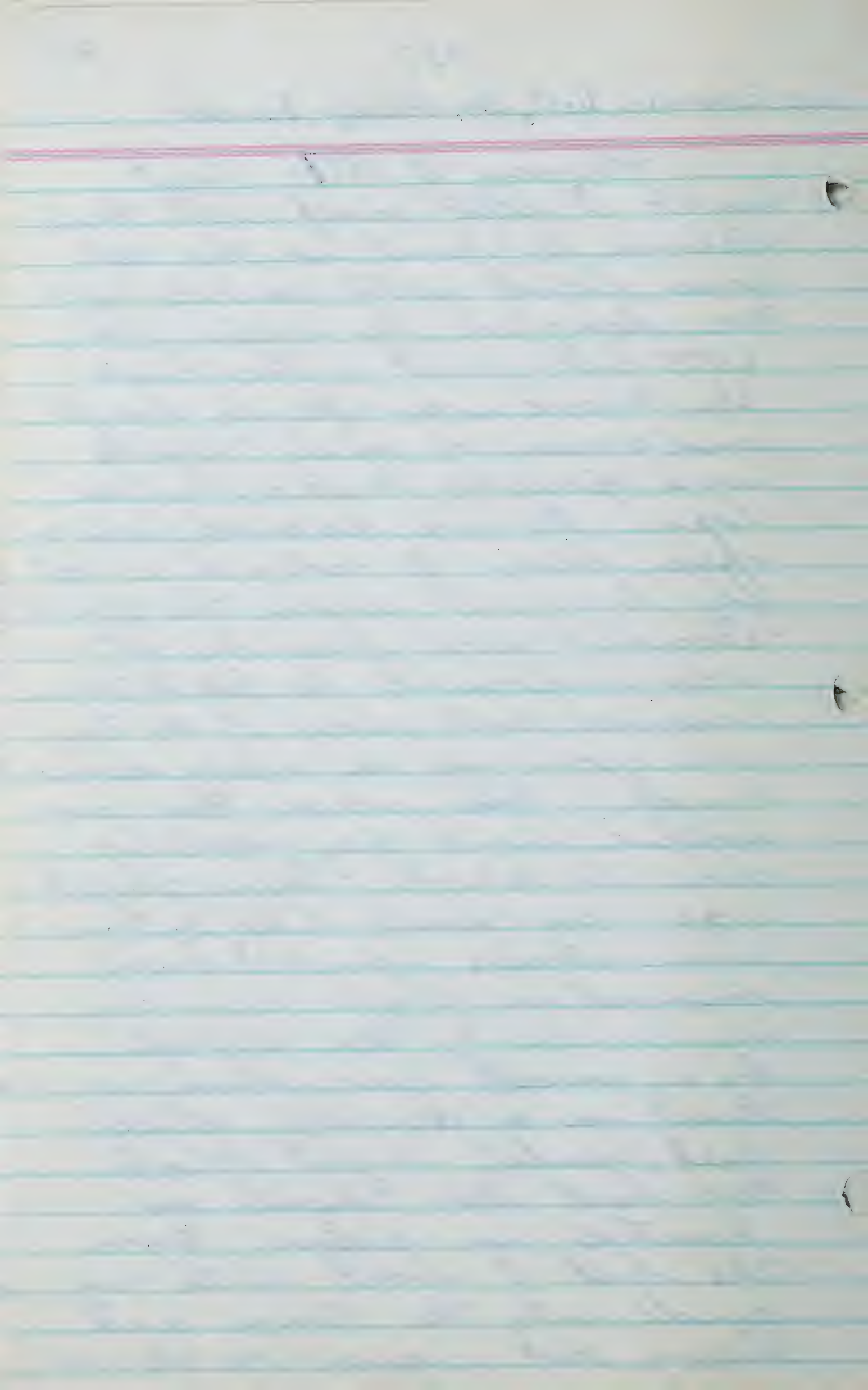


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February 10, 1927 - Last night I left camp with three natives to hunt in the oak rain forest with carbide lights. We reached the upper side, 8000 feet, just after dusk. The moon was fairly bright and a mass of misty clouds were pouring through the tree tops. As we passed into an open place I noticed a bat fly by just under the cloud. Several more flew by. It was impossible to shoot them because both sides of the trail was grown up in heavy dense brush. Also when they came within sight they were too close to shoot. Their flight was very much like *Nycteris borealis borealis*, which I have observed in flight many times in Panama. We rested by a small fire, which we built in a deserted native's hut, until eight o'clock. We had two lights so hunted in pairs. From the hut I went with my guide into the dense and heavy oak region on the north

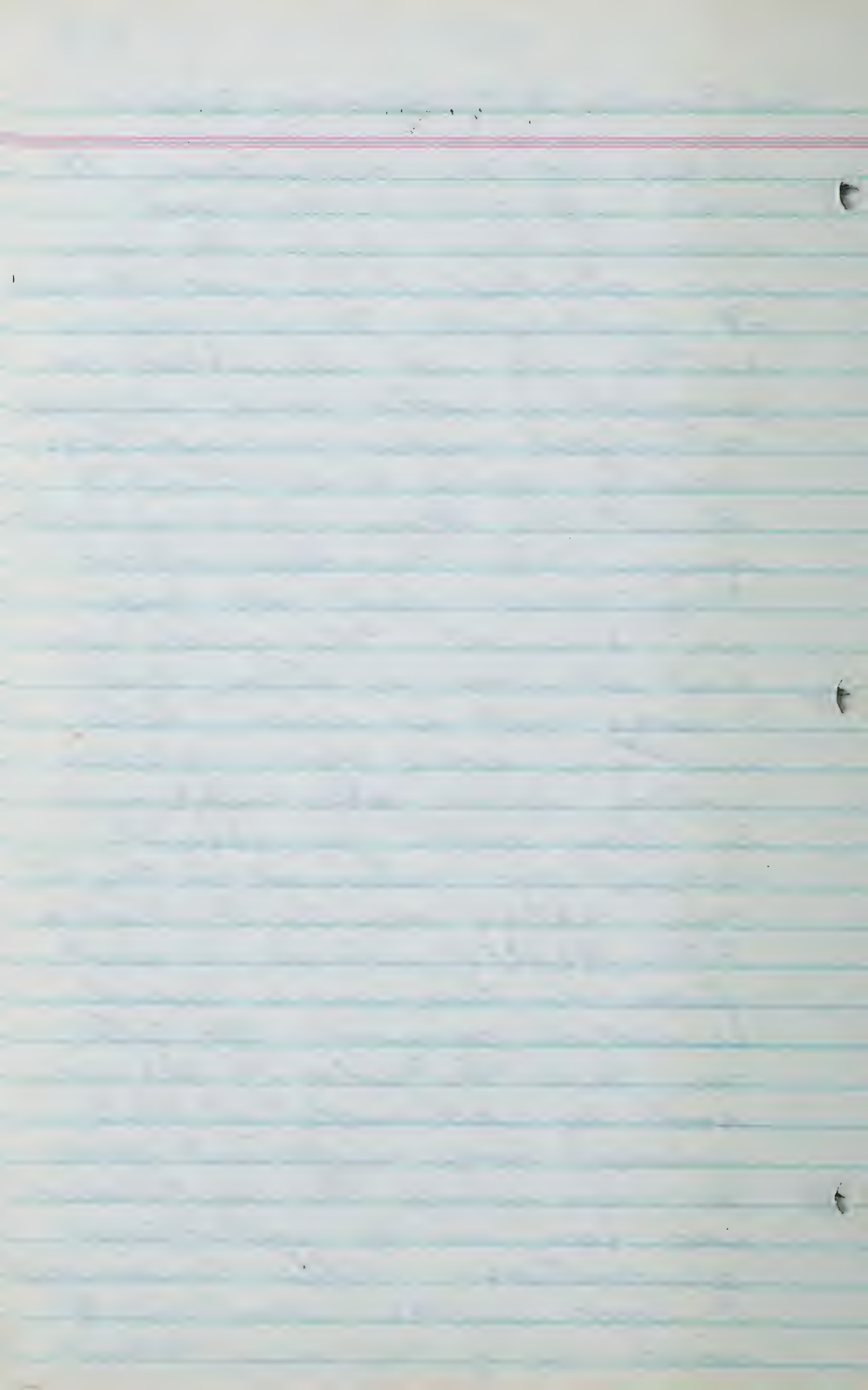


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slopes of the mountain. It was up one ridge and down another from the time we started until we returned at midnight. There were no paths so we stumbled over projecting roots and slipped on sleek moss covered logs nearly every time that I threw the beam from my light among the branches above.

Only once did we hear an animal. My guide swore that it was a lion, but I was not so sure. Later we ^{hunted} in some open places where lions were supposed to stay with no result.

When we returned to the hut our native assistant had a Potos, No. 12501, which he shot from a tree in a heavily wooded canyon. He told me that the color of the eyes and the call note of this animal was different from the ones which he had heard and seen in the subtropical associations. After midnight I took another short hunt with one of the men. While

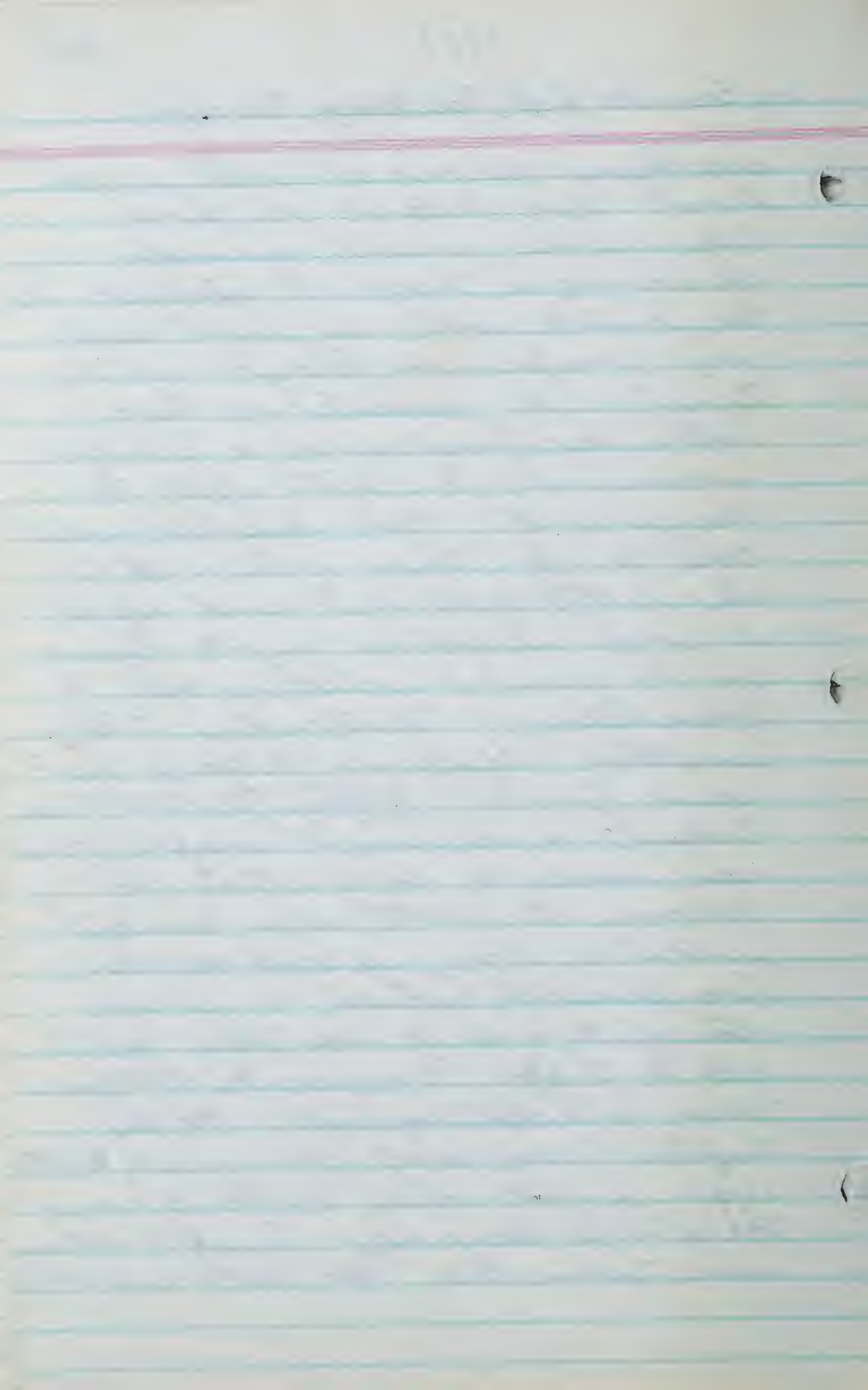


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walking along a well used trail we heard a noise like some small animal climbing a tree. I stepped into the brush with my light and my companion stayed in the trail. A minute or two later he fired and a *Didelphis mesamericus*, No. 12500 fell to the ground. We hunted until one thirty then returned to the little pole hut and spent a cold sleepless night lying on the ground rolled in our blankets. Yesterday I strung another trapline through the rain forest. ^{*Scotinomys*} *Pitymys*, No. 12497, was taken in a small snaptrap that ran under a damp rotten log. *Heteromys*, No. 12498, was caught under a large plant covered log, beneath which I found dry dirt, and it was there that I set the trap. *Peromyscus*, No. 12499, was taken on the old trapline. On the trapline near camp, *Peromyscus*, No. 12496, was caught where No. 12473 was taken three days ago. Two *Reithrodontomys* were taken also, Nos. 12494 and 12495.

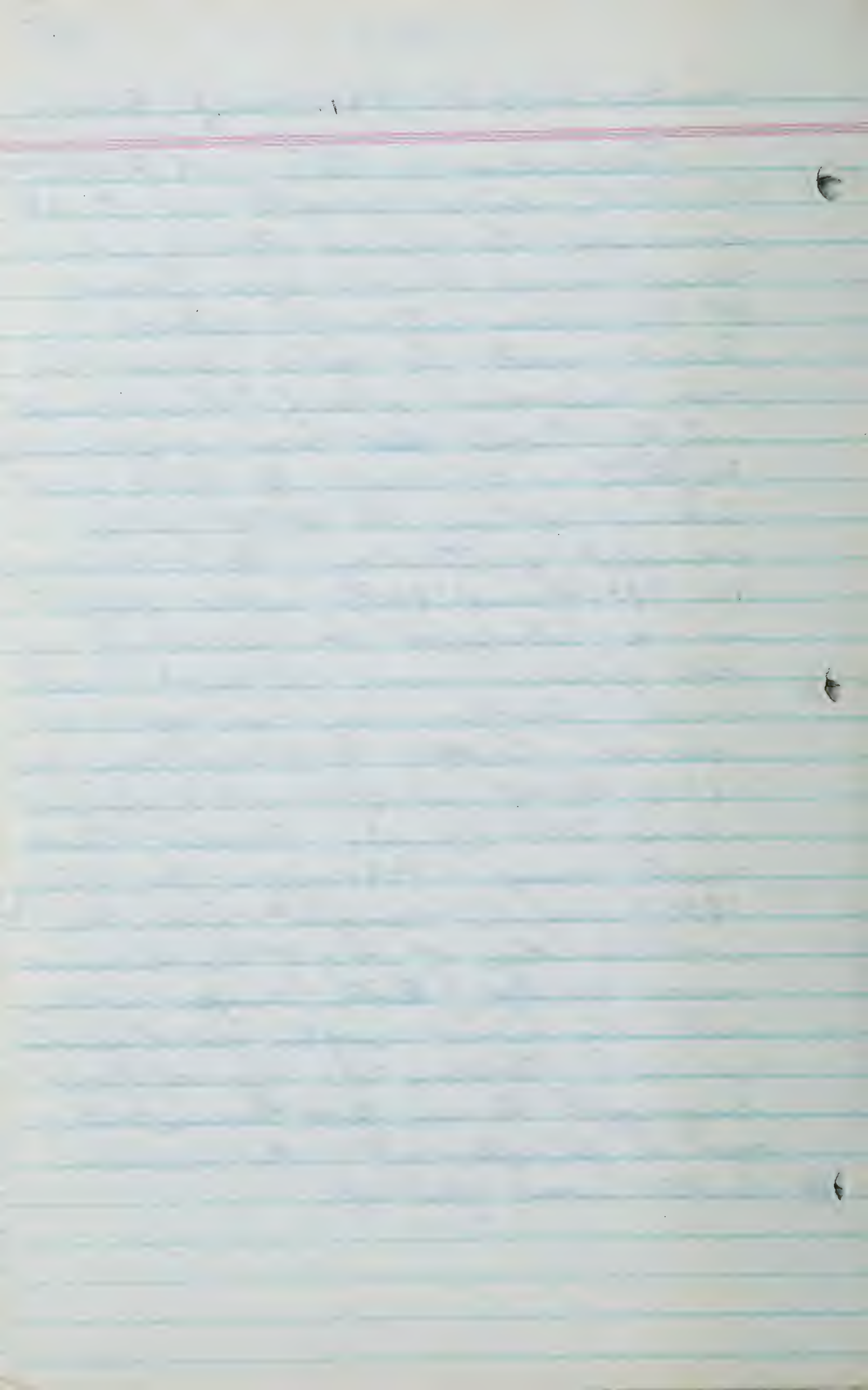


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February 11, 1927 - A *Pitymys* ^{*Scotinomys*} No. 12502, was caught in a set similar to many others where these mice have been found. Of the many attempts which I have made to catch shrews, the only mammal which I have caught in the traps ~~were~~ these supposedly *Pitymys* ^{*Scotinomys*}. *Heteromys*, No. 12503, was taken where No. 12498 was caught yesterday. *Reithrodontomys*, Nos. 12504 and 12505, were caught in a stripped corn field in an old gopher run which had been broken in in several places. ~~There~~ *Reithrodontomys*, Nos. 12508, 12509, and 12510 were caught along the brushy stream bank near camp. *Peromyscus*, Nos. 12506 ^{and} 12507, were caught near the water's edge of one of the streams near camp. Both traps were set by some rocks and under vines. Today the house boy brought to me two house mice, and a black rat. *Mus musculus* No. 12511 was put up.



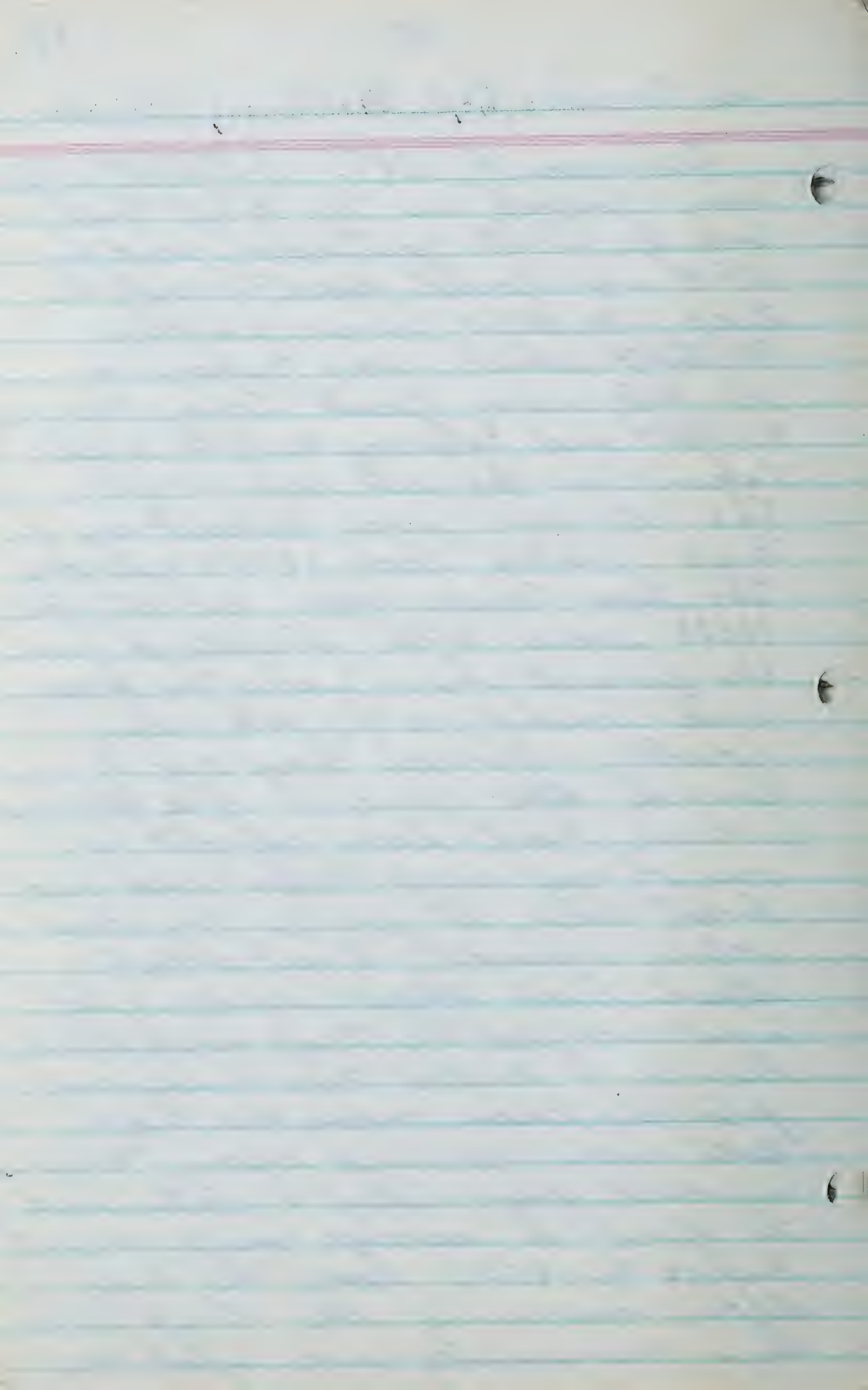
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February 12, 1927 - ^{Scotinomys} ~~Pitymys~~ No. 12513, was found in the trap that took No. 12502 yesterday and No. 12514 was found dead beside the trap. No. 12515 was another ^{Scotinomys} ~~Pitymys~~ which was taken in the oak rain forest today. ^{Peromyscus} No. 12519 and ~~Heteromys~~ No. 12520 were taken in the oak rain forest.

The ~~Heteromys~~ was caught in a trap which took 12503 yesterday. The two *Sciurus deppei* Nos. 12521 and 12522 were both frightened from the ground from under the ferns and brush in the oak rain forest. Several days ago I found the remains of a ~~Heteromys~~ which had been caught in one of my snap traps and had been torn to pieces by some other animal. I set a No. 0. steel trap there under a log and covered the trap with dead leaves. I killed two birds and placed them near the trap. Both were carried away. However several days later I returned to find a savage male weasel *Mustela* No. 12523, ~~at~~ the trap. After running the trap line this morning we spent the



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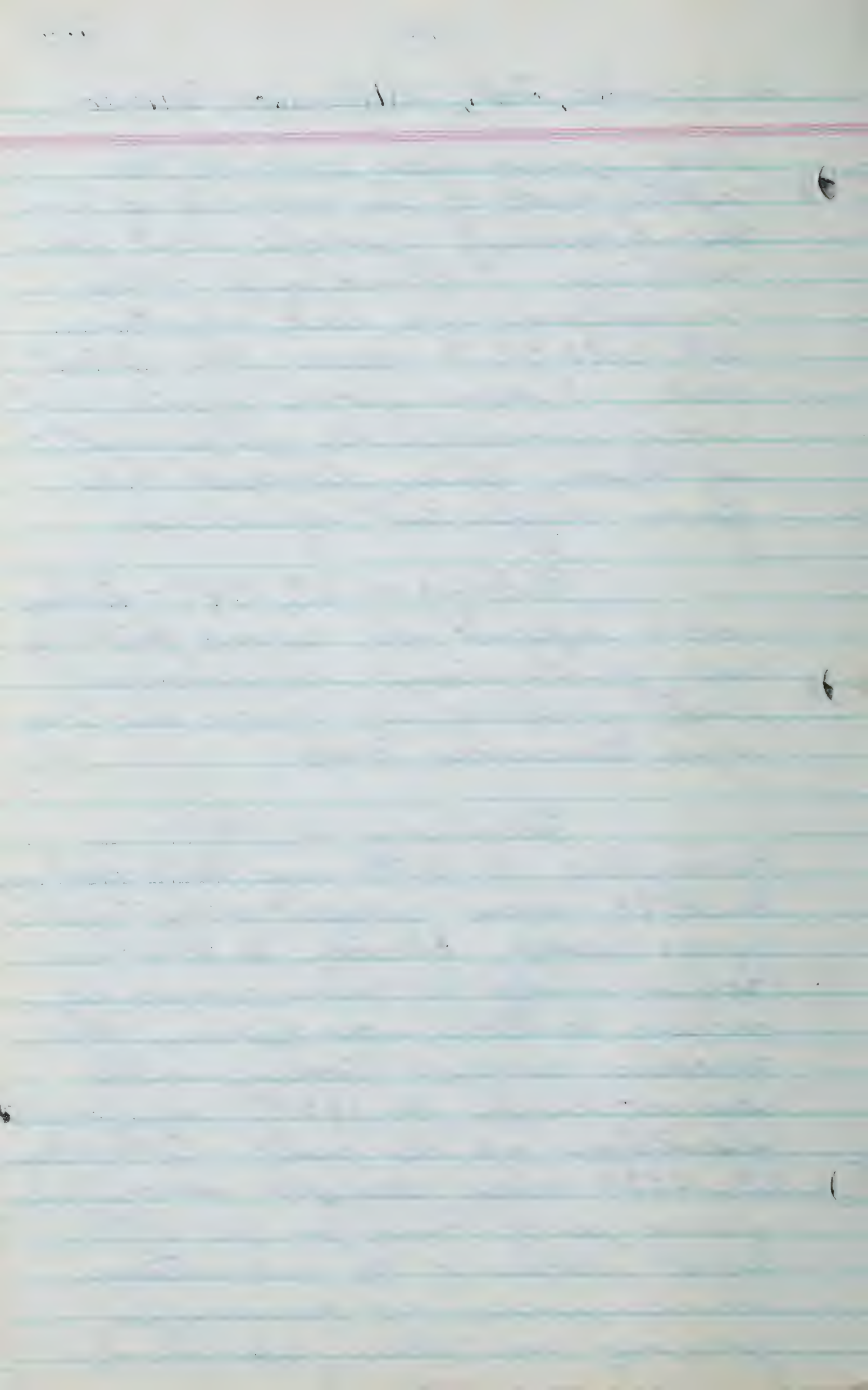
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day going far over to the north side of the mountain in the heaviest jungle but saw nothing. I remained on the mountain for bat shooting. At 6:20 P.M. I saw the first bat. I saw four bats, but was unable to get a shot at them they looked like four different species.

February 13, 1927 - Today was spent in camp putting up yesterdays specimens and resting up from the long and tiresome trip.

February 14, 1927 -
Peromyscus No. 12525 and *Reithrodontomys* No. 12524 were caught on the trapline near camp. *Heteromys* No. 12526 was taken under the moss covered log where No. 12503 was taken. This makes several taken in the same trap. No. 12527 was caught farther up the hill. *Orthogeomys* No. 12528 was caught among grass, ferns, and bush on one of the east slopes of the mountain. There were no animals grazing in this pasture.



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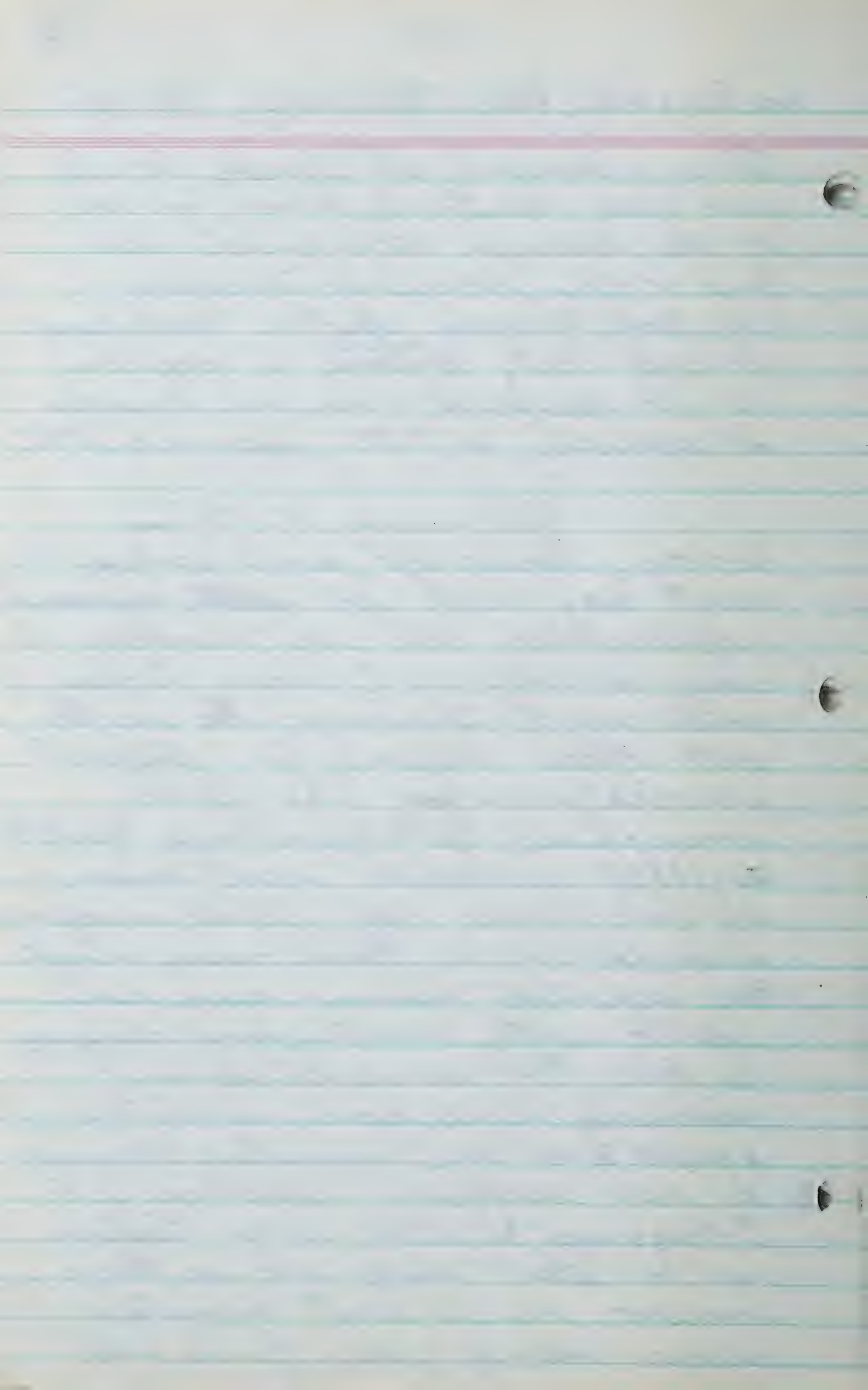
Los Eses miles, Dept., Chalatenango, Salvador

This evening at dusk while we were sitting down in one of the barren corn fields near one of the brushy streams

Mr. Van Rossem shot a Mexican black bat, ^{Myotis} ~~Nyctotis~~ ^{lasjurus} b. mexicana, as it passed over our heads at exactly 6:17 P.M. Specimen No. 12529.

February 15, 1927.—

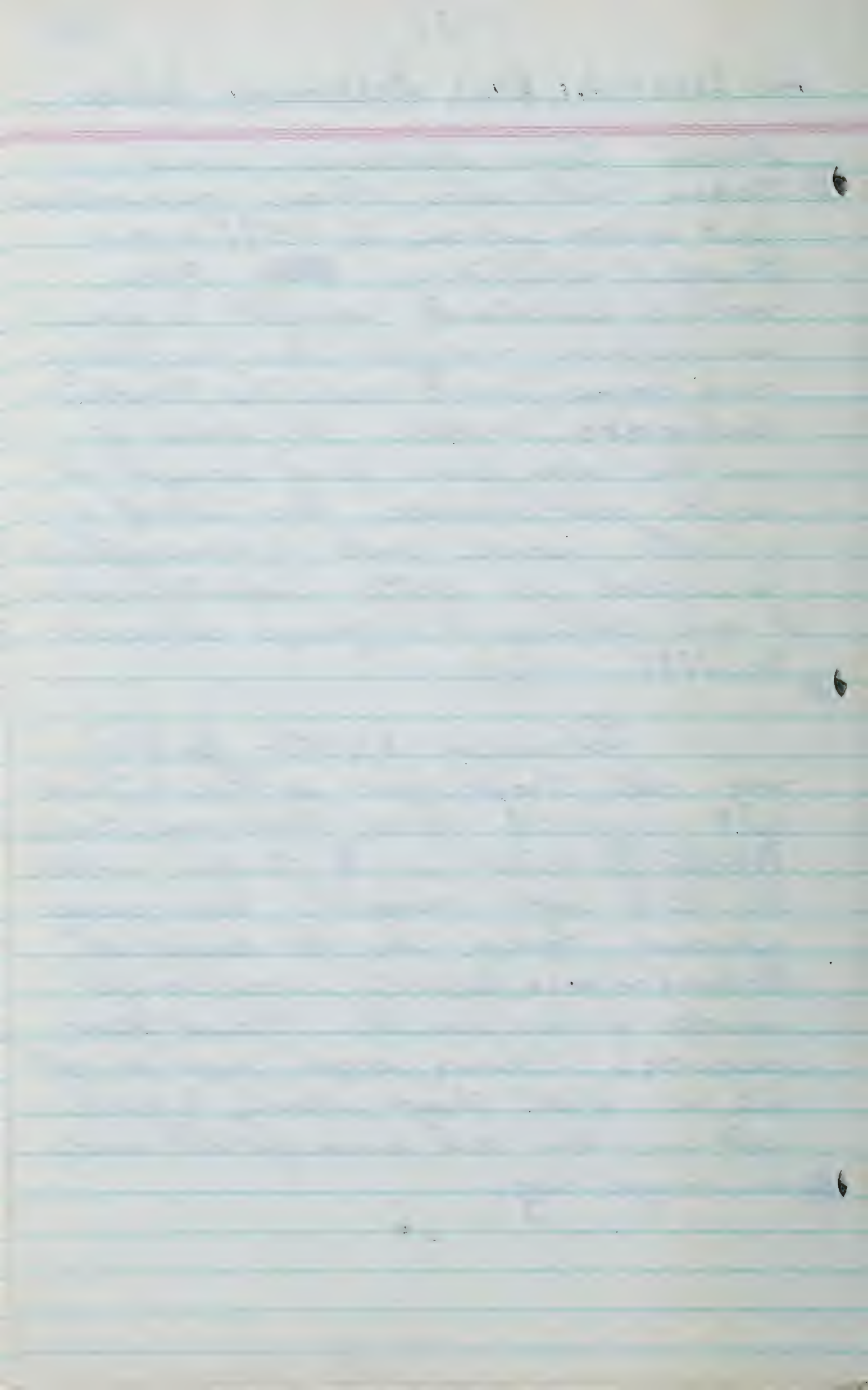
Today, tomorrow, and perhaps the next day will be ~~with~~ necessarily represented low in numbers in my serial as I have today, and will tomorrow ~~the~~ work out other regions for different associations. ~~The~~ The four immature *Reithrodontomys* Nos. 12530 to 12533 inclusive were taken by our house boy while snooping around in the brush near camp. He reported having seen an adult with these young clinging to her. He succeeded in catching these four while the adult and one immature clinging to her escaped. Another *Orthogeomys*, No. 12534, was taken in a steel trap set in ~~the~~ a burrow on the east mountain slope among grass, ferns, and



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brush. This specimen was taken not more than one hundred feet from where No. 12528 was trapped yesterday. ~~the~~ Our native assistant caught a small immature mouse in the heavy oak rain forest near the Honduras Salvador border. He saw it in the day time and caught it with his hands. For want of a better name and of descriptions to lead to better identification I am calling it *Oryzomys caliginosus* No. 12535.

February 15, 1927 - Part of my old trap line which I had not removed had two mice today. ^{P. & Scotinomys} ~~Pitymys~~ No. 12536, was taken where No. 12514 was caught. This makes several taken in the same set. *Reithrodontomys*, No. 12537, was caught under grass in the cleared pine region. *Sciurus deppei* was caught in a steel trap which I had set in the oak rain forest under a large log.

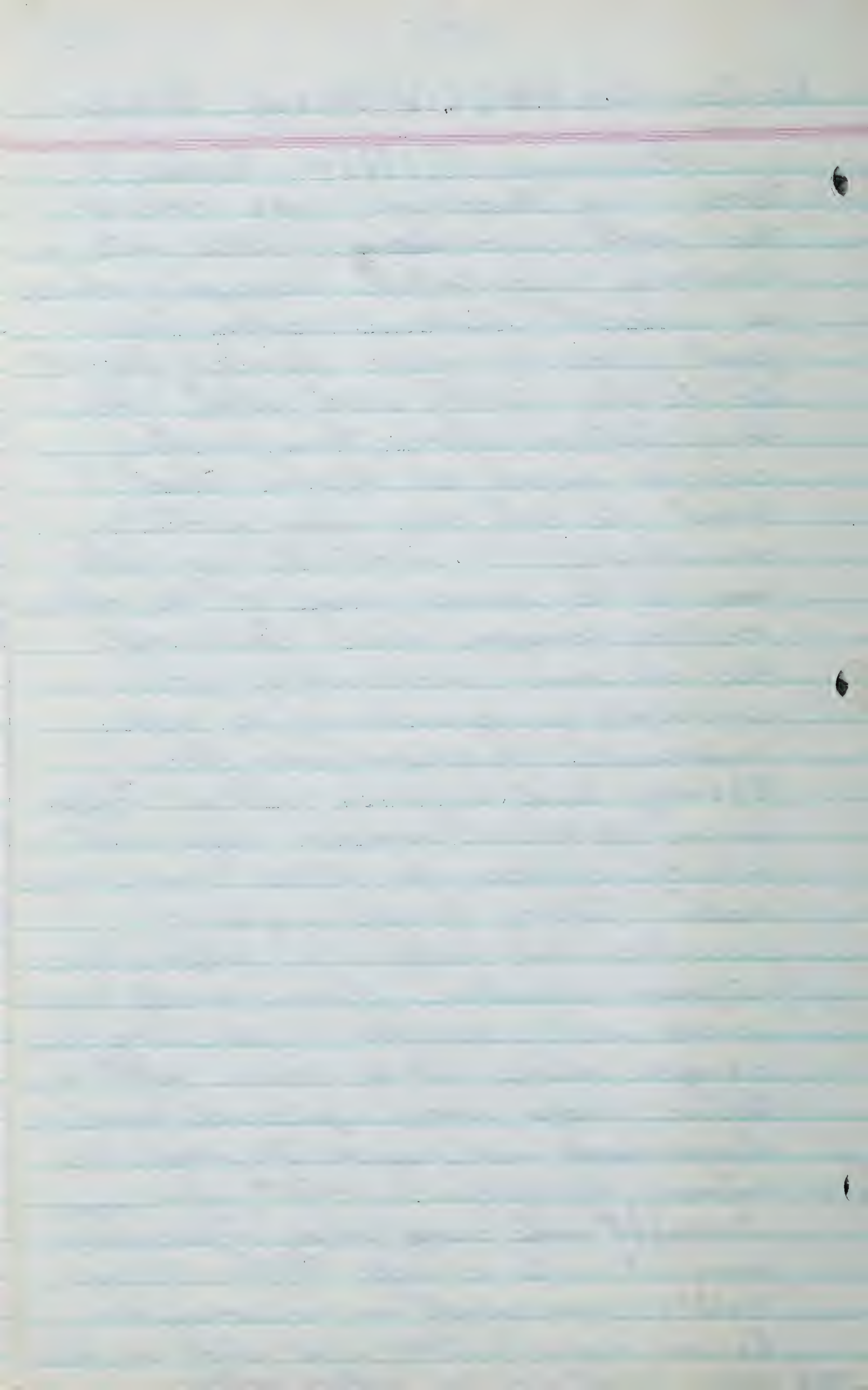


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February 17, 1927 - Today I took my trap line far over on the north ~~mountain~~ slope into a heavily vegetated canyon where a small stream, every few feet fed by more springs, flowed off to the north and east. The vegetation along this water course was so dense that I had to cut my way with a machete. I started my sets ~~on~~ at the lower edge of the oaks in the canyon and followed the stream downward for perhaps a quarter of a mile, especially making bets for *Rheomys* and *Cryptotis*. Some traps were placed under logs and likely places for other mice and rats. There were signs of *Cuniculus* and *Dasyprocta* along the stream course. Other snap traps were set among trees along the canyon slope at a lower altitude. These traps were placed under logs and in runs through the moss. *Sylvilagus* No. 12539, was ^(natives) brought into camp today. Their dogs ran it into a hole. *Reithrodontomys*, No. 12540, was caught in our house, and *Sciurus deppei*, No. 12541, was shot in the oak rain forest by our native helper.



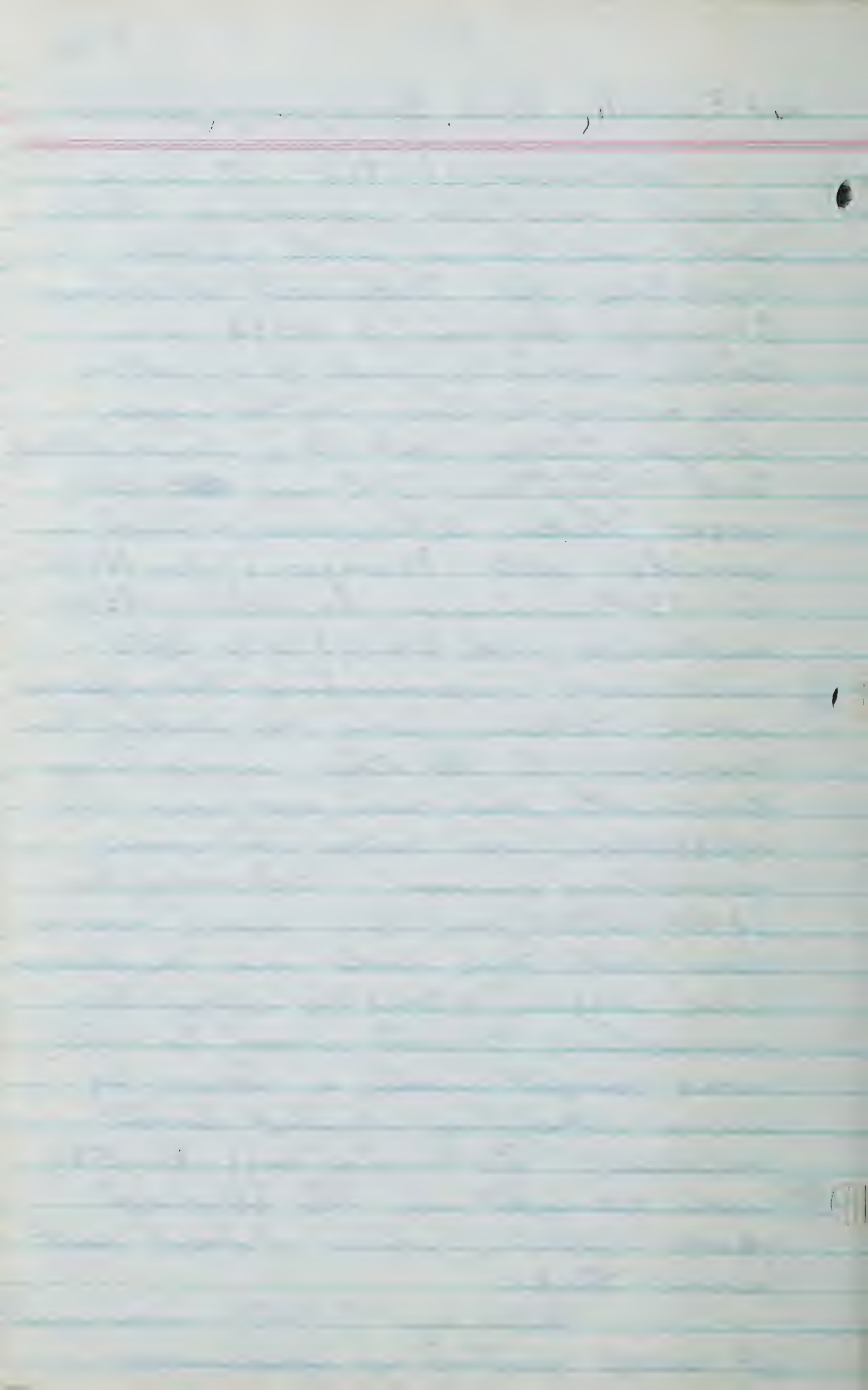
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February 18, 1927- A long tramp over the mountain today took me to a well filled trapline for tropical collecting. *Oryzomys caliginosus*, No 12542, was taken under the end of a rotten log, among the trees on the upper canyon slope but at a lower altitude. Two ^{*Scotinomys*} *Pitymys*, Nos. 12543 and ~~12543~~ 12544, were taken at the same altitude in similar sets. *Peromyscus*, Nos. 12545 to 12549 inclusive, Nos. 12551 to 12554 inclusive, and Nos. 12556 to 12558 inclusive representing two species were taken from one end of the trapline to the other, under logs tree-roots, and moss and ferns. One specimen was eaten by some prowling animal. *Heteromys*, Nos. 12559, 12560, and 12561 were under logs and tree roots near the stream and higher along the slope. An immature *Sciurus deppei*, No. 12555, was caught under a large log in a snaptrap baited with oatmeal. *Reithrodontomys*, No. 12550, was caught in the cleared pine region where I had left some traps.

February 19, 1927- was spent at camp putting up specimens.

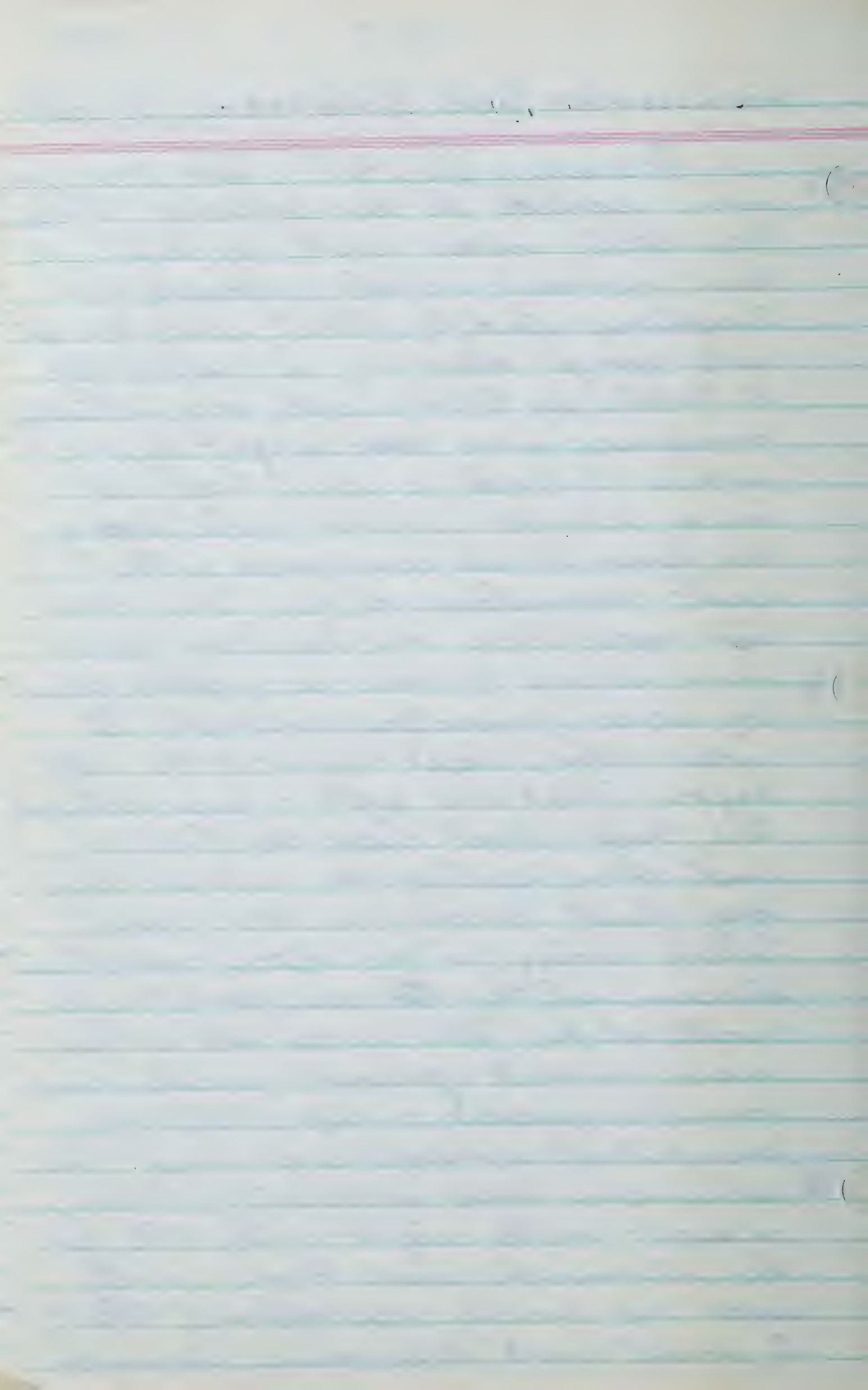


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Los Eses miles, Dept., Chalatenango, Salvador

February 20, 1927- Two *Urocyons* were added to the collection today. No. 12562, was shot by G. D. S. this morning while running his trapline and, No. 12563, was brought into camp alive by a native boy. A *Mephitis*, No. 12564, with very interesting markings was ~~was~~ caught by me, where I had a steel trap set in a small round hole among the ferns, brush, and grass on the east mountain slope. This was not more than one hundred yards from where I had a gopher eaten by some predatory animal. It was either last night or the night before that the gopher was destroyed. The trap, that had the *Mephitis*, had been setting for several days. My first *Rheonyx*, No. 12565, was taken today in the little mountain stream in the ~~the~~ rain forest on the north slope. This was set so that main current passed under and over the peddle or trip of the big snap trap which was used. The specimen had apparently been caught on the night of the 18th, for the stomach and body cavity was so badly decomposed that I could not determine stomach



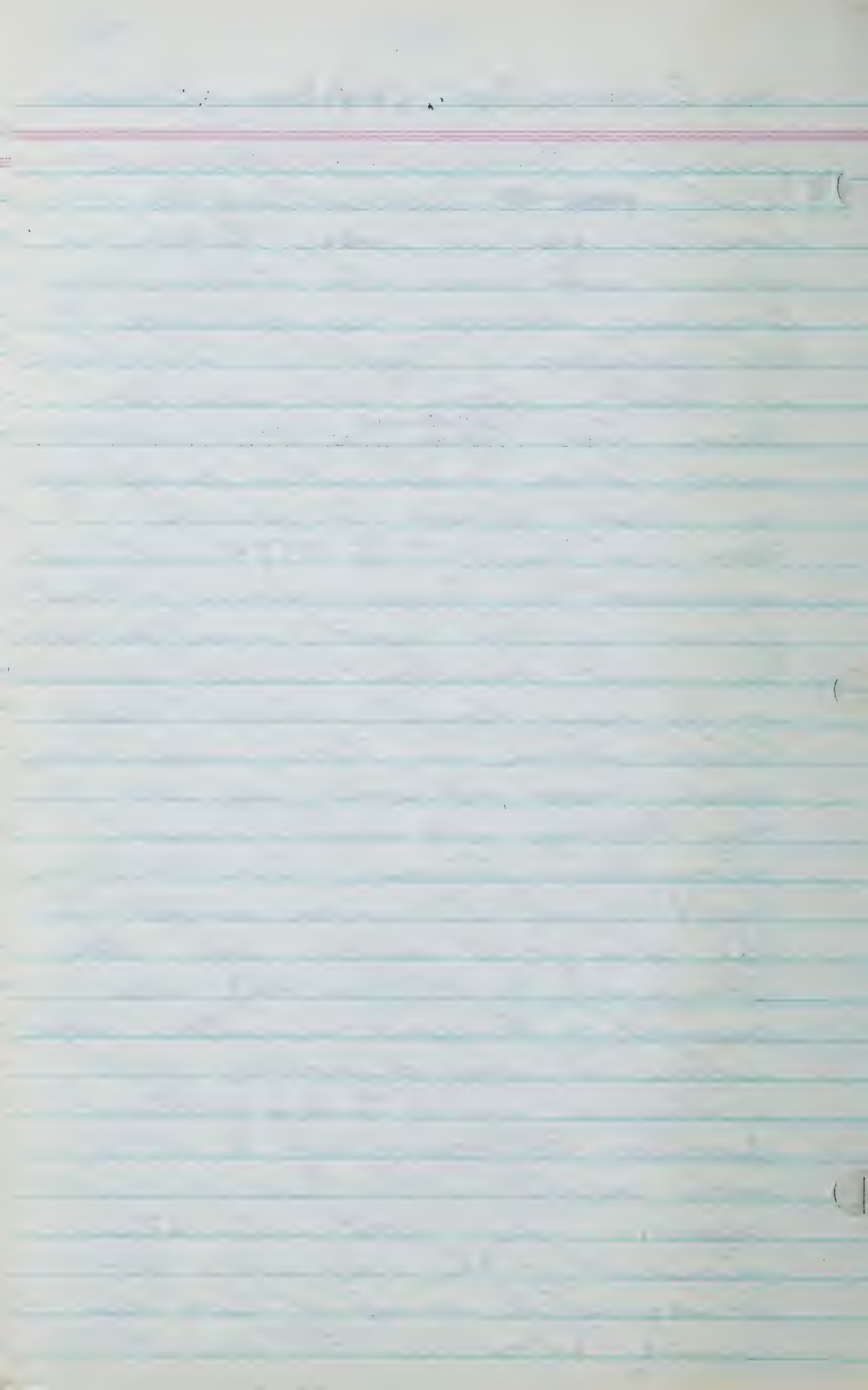
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Los Esesmites, Dept., Chalatenango, Salvador

content. *Peromyscus*, Nos. 12566 and 12567, ~~representing~~ representing the smaller species were taken in shrew sets near the stream. My trapline showed no evidence of the presence of *Cryptotis*. There were at least a dozen sets made for them. Two ^{*Scotinomys*} ~~*Pitymys*~~, Nos. 12568 and 12569 were taken under rotten damp logs in likely places for shrews.

Peromyscus, Nos. 12571 to 12574 inclusive, represent the larger species of that genus in this region, and probably the most abundant small mammal in the rain forest, where I have taken them in trees, under logs, under moss and roots, and even in my *Rheomys* sets in the small mountain stream. Two *Heteromys*, Nos. 12575 and 12576, were caught in the rain forest under logs. An *Orthogeomys*, No. 12579 (skull only), was caught on the east mountain slope, where it was discovered and destroyed by a turkey vulture. Another *Reithrodontomys*, No. 12570, was caught in the cleared pine region. The most interesting incident of the day was the bringing to camp of two very young *Lutra*, Nos. 12577 and 12578,



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by an Indian boy. This boy while strolling along a bushy ridge not more than one half of a mile from camp, saw an old otter, *Lutra*, run out from a huge rock near him and off down the slope perhaps 150 yds. to a small stream. Absently minded, as all these people are, he went directly to the spot and dug out the young ones. This is as the story was retold to me. G. D. S. has been trying to trap or shoot the old one, but as yet has had no luck. Being busy with my trapline above I have not visited the place.

February 21, 1927- A large female *Rheomys*, No. 12580, was taken in the small mountain stream. The trap was set like the one which caught a male yesterday. Some interesting notes as to breeding habits and food habits will be found on the tag of this specimen. *Oryzomys*, No. 12582, was taken in a large snap trap at the edge of the small mountain stream. Another was caught but destroyed by the trap. Another

1927

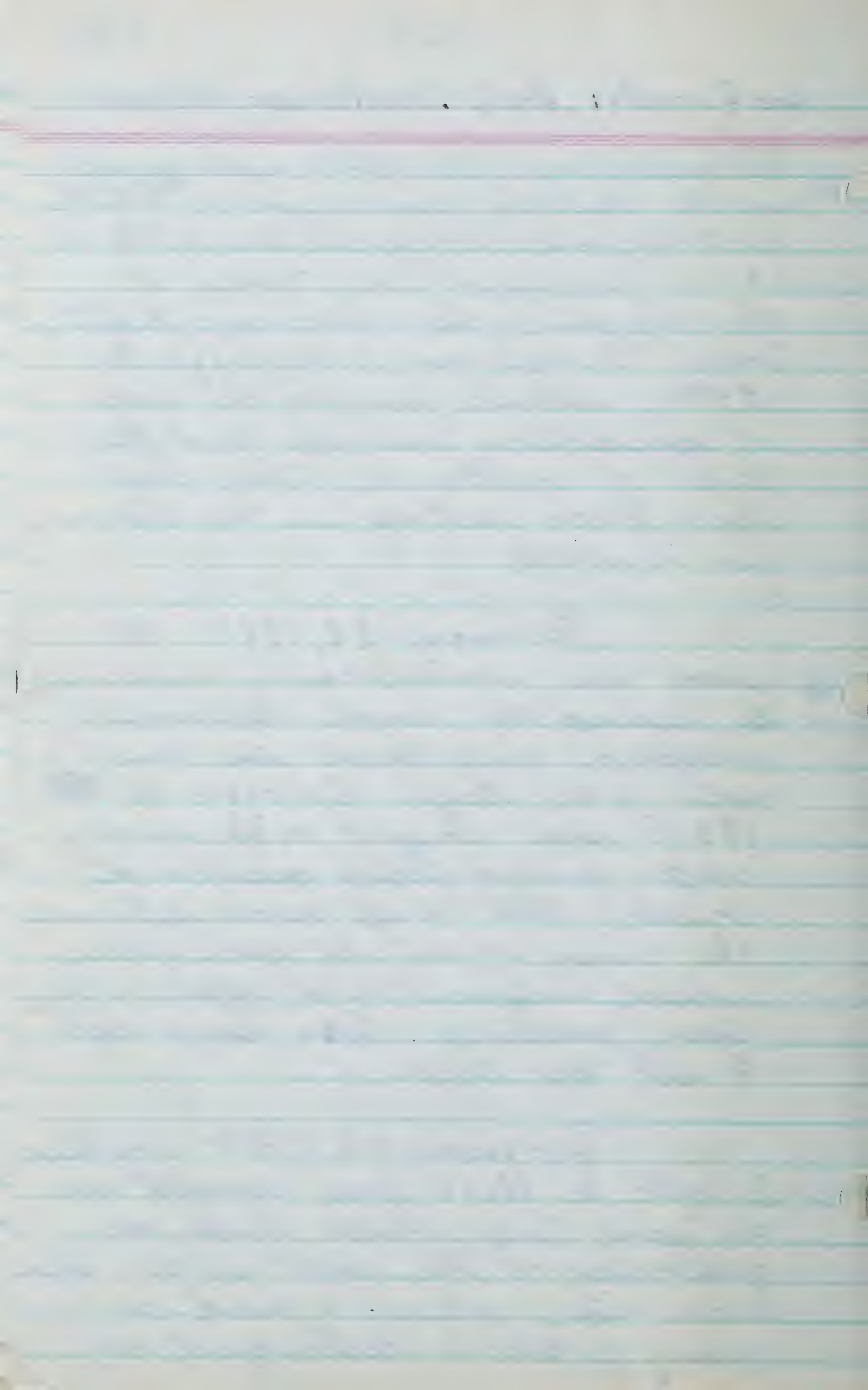
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Los Esesmiles, Dept., Chalatenango, Salvador

Reithrodontomys, No. 12581, was caught in the cleared pine region. ^{Scotinomys} ~~Pitymys~~, No. 12583, and Peromyscus Nos. 12584 to 12587 inclusive was taken on the trapline, also a Heteromys, No. 12588. Today I had an Orthogeomys, No. 12589, which escaped the noses of predatory animals and the eyes of vultures. This trap had been setting in the burrow for a week.

February 22, 1927 - It seems an unnecessary duplication to refer to each specimen collected since there are brief notes on the tags. Spilogale No. ~~12600~~ 12601 was caught on the east slope among ferns grass and brush. The trap was set under the corner of an old pole fence where animals had apparently been passing. Five days ago I set the trap.

February 23, 1927 - another Spilogale, No. 12602 was caught in the same trap which had one yesterday on the east slope. This was near where I had so many gophers destroyed by



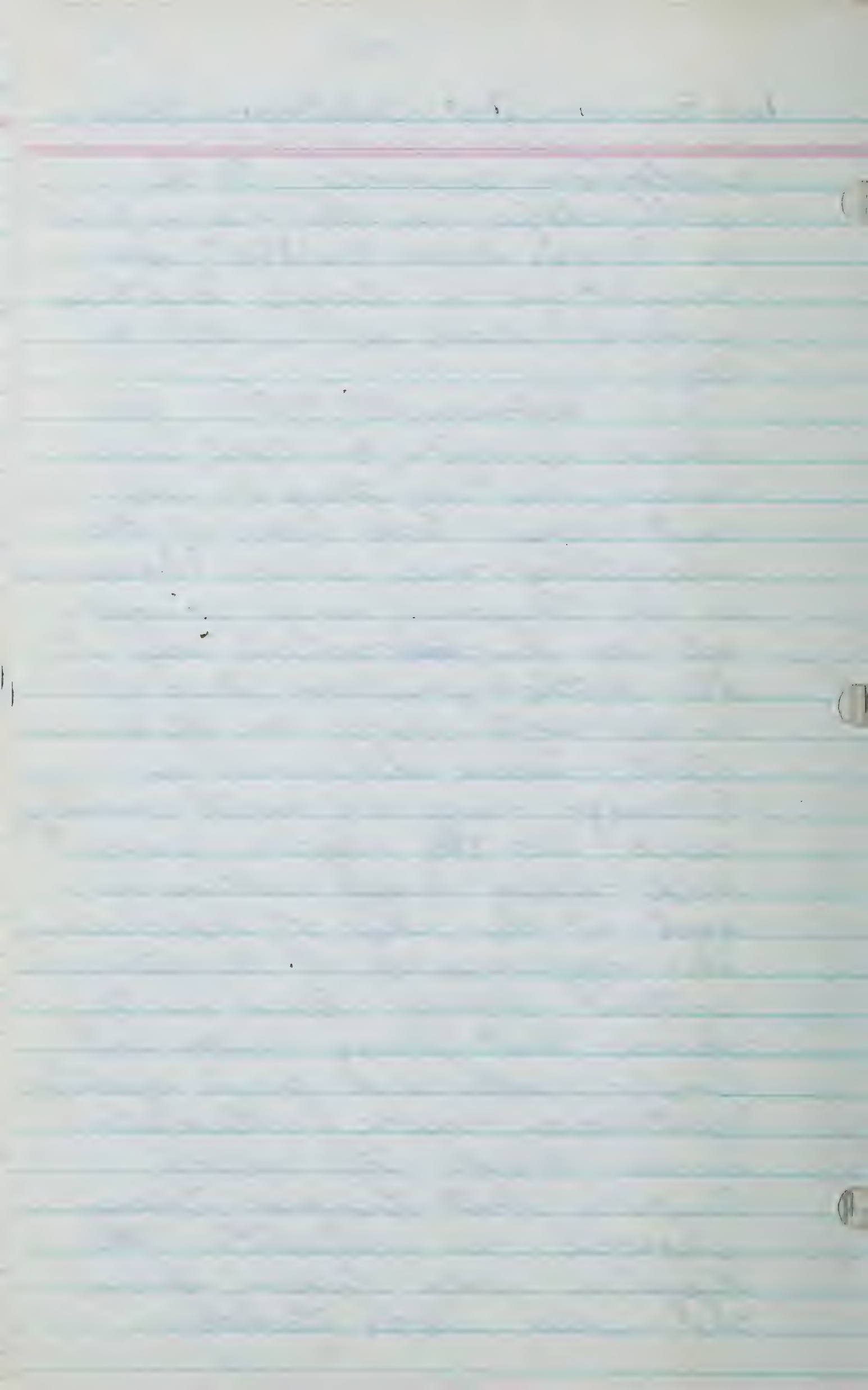
1927

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Los Escosmiles, Dept., Chalatenango, Salvador

predatory animals. On the north slope in the rain forest a *Sciurus deppei*, No. 12609, was caught in a large sap trap which I had set under a log.

February 24, 1927- The third *Spilogale*, No. 12622, was taken in the trap on the east slope. Two more of the interesting mice, which I assume to be *Oryzomys*, were caught at the very ~~water~~ water's edge of the little mountain stream on the north slope. Nos. 12616 and 12618. These as well as *Rheomys* may be well considered rare for the region since I had many traps setting in and at the edge of the stream. The appearance of the stomach content would lead me to think that these mice eat tender roots and fresh sprouts. Yesterday more attempts were made to catch *Cryptotis* but traps today showed no results. The trapline was taken from the north slope today.



1927

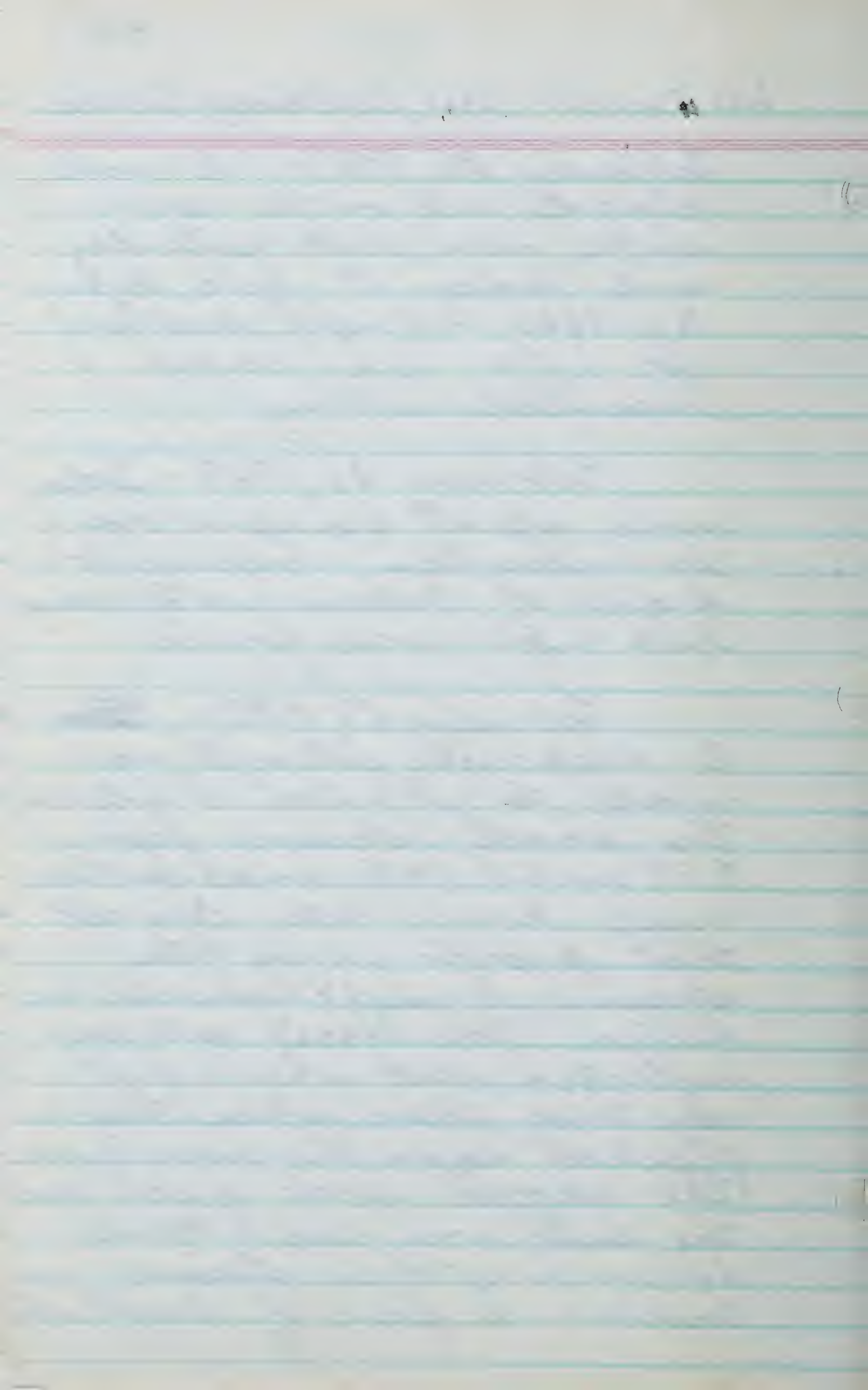
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Lios Eses miles, Dept., Chalatenango, Salvador

February 25, 1927 - A well placed set on the north slope was left yesterday and today it held, *Oryzomys* No. 12626. Night hunting for *Lutra*, near camp resulted nothing.

February 26, 1927 - Today was spent tramping over the mountain looking for signs of *Neotoma* and *Blaucomys* but none were found.

February 27, 1927 - ~~There~~ A desperate attempt was made to get *Lutra*. I followed the small streams from T. P. M. until 1: A. M. and killed three house cats. Any cat that prowls along those streams at night should be killed. The first cat's eyes reflected red when I first saw them then when they flashed again they were green. The second was green and the last was red. While descending ^{out} of the stream courses a pair of bright red



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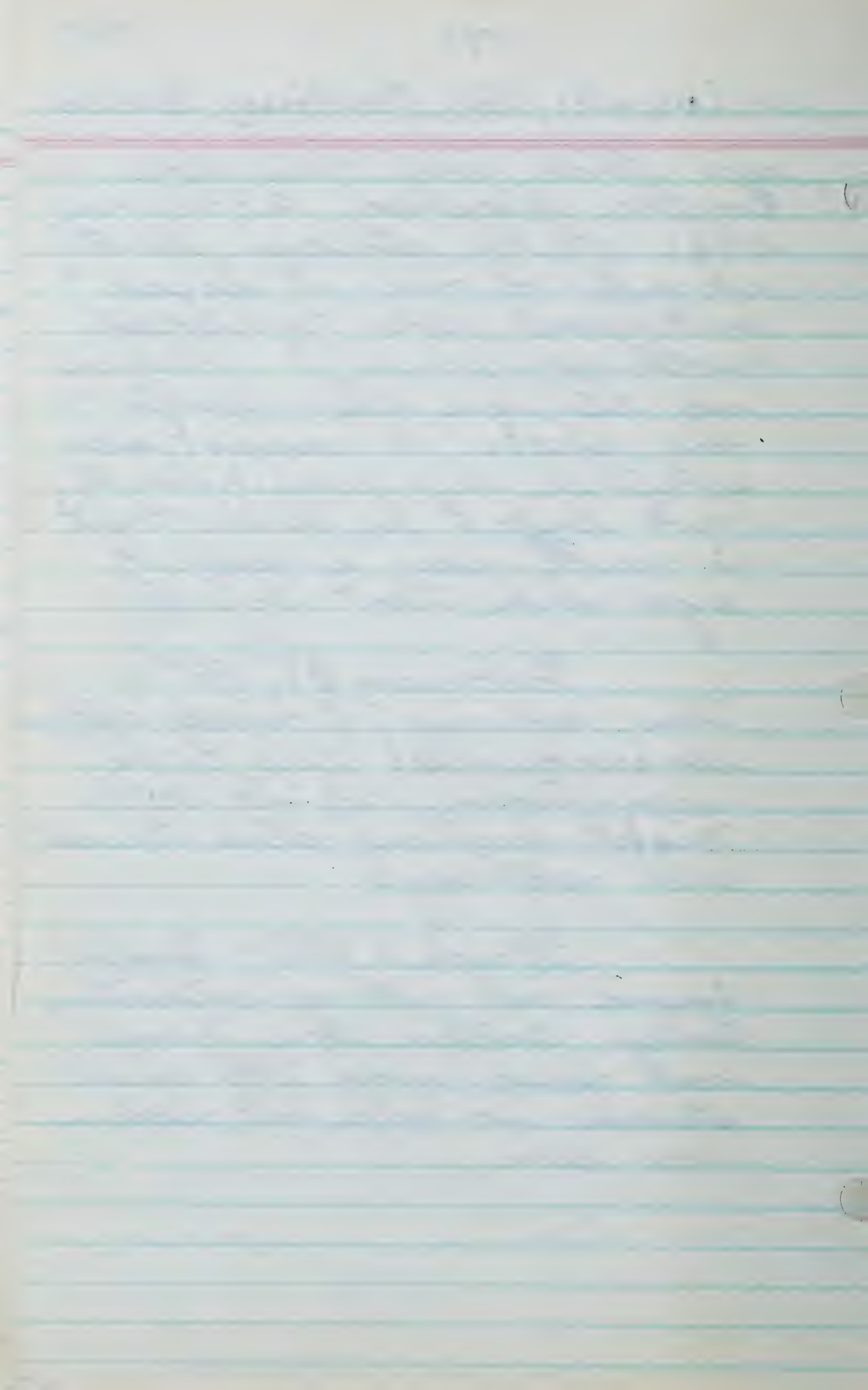
Los Eses miles, Dept., Chalatenango, Salvador

eyes that were very close together flashed at the very edge of the stream directly ahead of me. I fired but was able to locate nothing when I rushed up to see the results of my shot. I cannot say whether this was *Lutra* or not but I do know that I never saw a pair of eyes like that before.

February 28, 1927—

This evening I made another unsuccessful trip to the mountain top for bats. Night hunting also turned out nothing.

March 1, 1927— Trapline turned out nothing interesting today. Another long tramp was made along the small streams for *Lutra*, but nothing was seen.



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Los Esesmites, Depto, Chalatenango, Salvador

March 2, 1927 - Five specimens of semi-aquatic ^{Oryzomys} were taken today in traps that were set in the small streams near camp. The only traps that caught these *Oryzomys* were taken in traps which had been set in the water.

March 3, 1927 - The usual small trap line was run near camp today and more sets were made for *Orthogeomys* in the brush and ferns on the east slope of the mountain Los Esesmites. A special net was taken during the day for the long traps laid out for night hunting for *Lutra*. I followed the stream in the so called, plains region from 7 P.M. until 12:30 A.M. and saw absolutely nothing to shoot at except horses and mules.

March 4, 1927 - I managed my work the same as I did yesterday, but followed other streams for *Lutra* with no result.

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Los Esesmites, Dept., Chalatenango, Salvador

March 5, 1927 - Still determined to get *Lutra*, we followed the main stream of the plains region at least three miles to the south over a terrible stream bed. The only results were an *Anthrostomus* and a *Urocyon*, No. 12674.

March 6, 1927 - The interesting note of the trapline for small mammals today was that *Reithrodontomys*, Nos. 12671, and 12672 were taken in traps set in the water of the small streams near camp. I followed another stream course for *Lutra* again but returned with one *Urocyon*. G.A.S. had good luck in the rain forest.

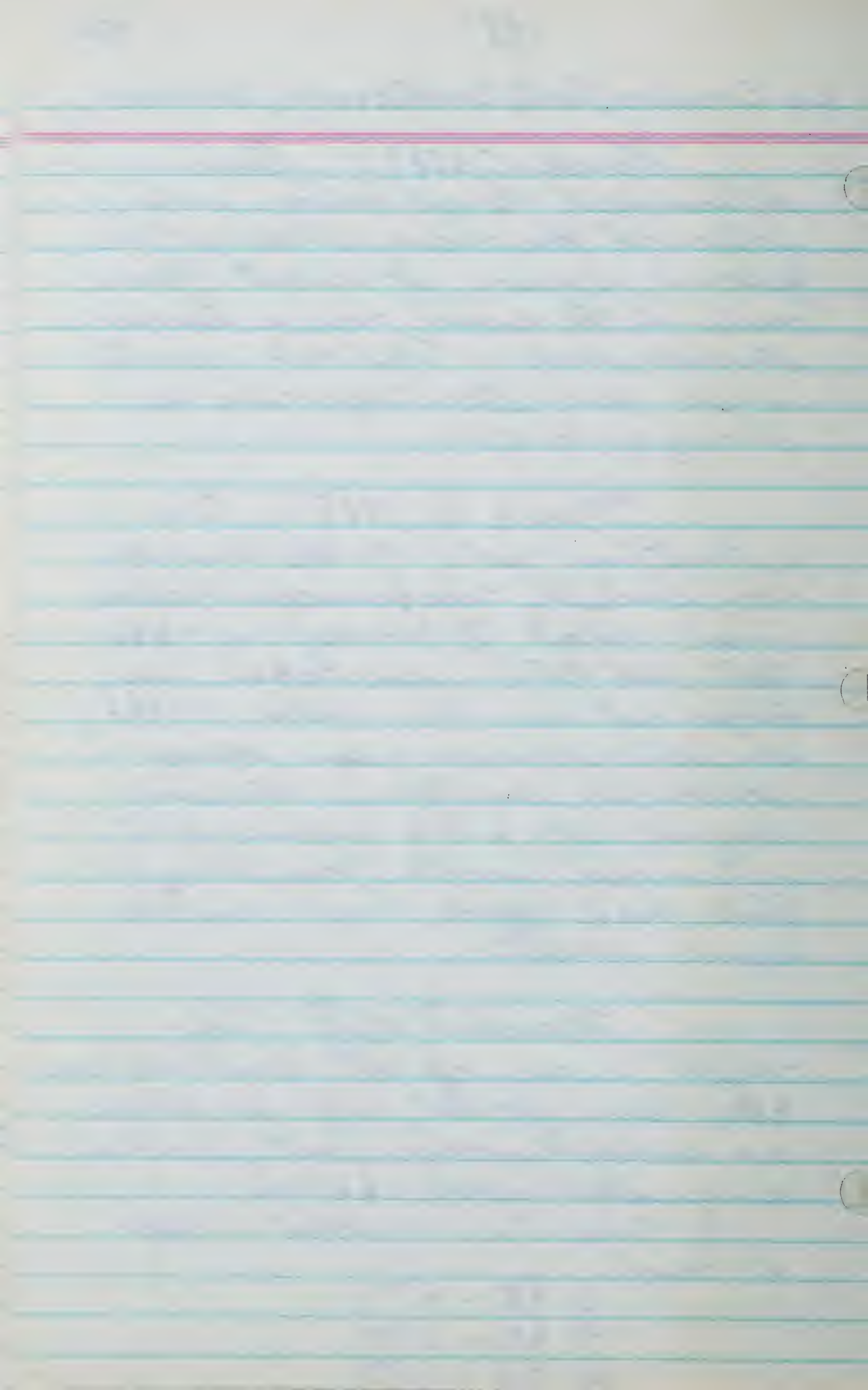
March 7, 1927 - The night was spent hunting in the rain forest, so as well as being worn out, I was disgusted with *Lutra*.

Temperature recorded in shade at camp.

6: A.M. - 47°F.

9: A.M. - 58°F.

6: P.M. - 70°F.



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Los Esesmites, Dept., Chalatenango, Salvador

March 8, 1927 - The day was spent on the mountain collecting a few lizards and taking pictures. Mr. van Rossem saw a porcupine quill which had been taken from a native's foot. The native claimed to have picked it up in the rain forest.

March 9, 1927 - packing and breaking camp



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P. 1

San Jose del Sacare, Dept., Chalatenango, Salvador

March 10, 1927- We left Los Esesmiles early this morning, stopped at a mud shack where lunch had been prepared for us at 11:30 A.M. and reached our next camp at San Jose del Sacares at 3: P.M. San Jose is a small place on the trail between La Palma and La Kena. There are perhaps two dozen mud brick houses or huts on either side of the trail with an equal number scattered along the oak and pine ridges. I had time to string thirty traps this evening before dark. I followed a trail off through the oaks to the east of camp and strung five traps at various points along a dry red clay banked ravine which led down through the oaks (sonoran) to where a small stream flowed on farther down to join a larger stream. Although there has been so much grazing along this stream that nearly everything is stripped, there are a few places such as under pole fences

1927

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San Jose del Sacare, Dept., Chalatenango, Salvador

and in boggy places that there is tall green grass. It was in these places where I set some traps for *Oryzomys* and *Sitomodon*. Also some traps were set in the stream for *Rheomys* and aquatic or semi-aquatic *Oryzomys*. From this stream I went on over another ridge of oaks and pines to the east to another small stream where there were banana trees and a few scattering plants of coffee. This vegetation, representing the Sub-tropical zone, was quite barren and dry. Much grazing had been done along this stream, which causes the barren and dry appearance. I set several traps about the banana trees.

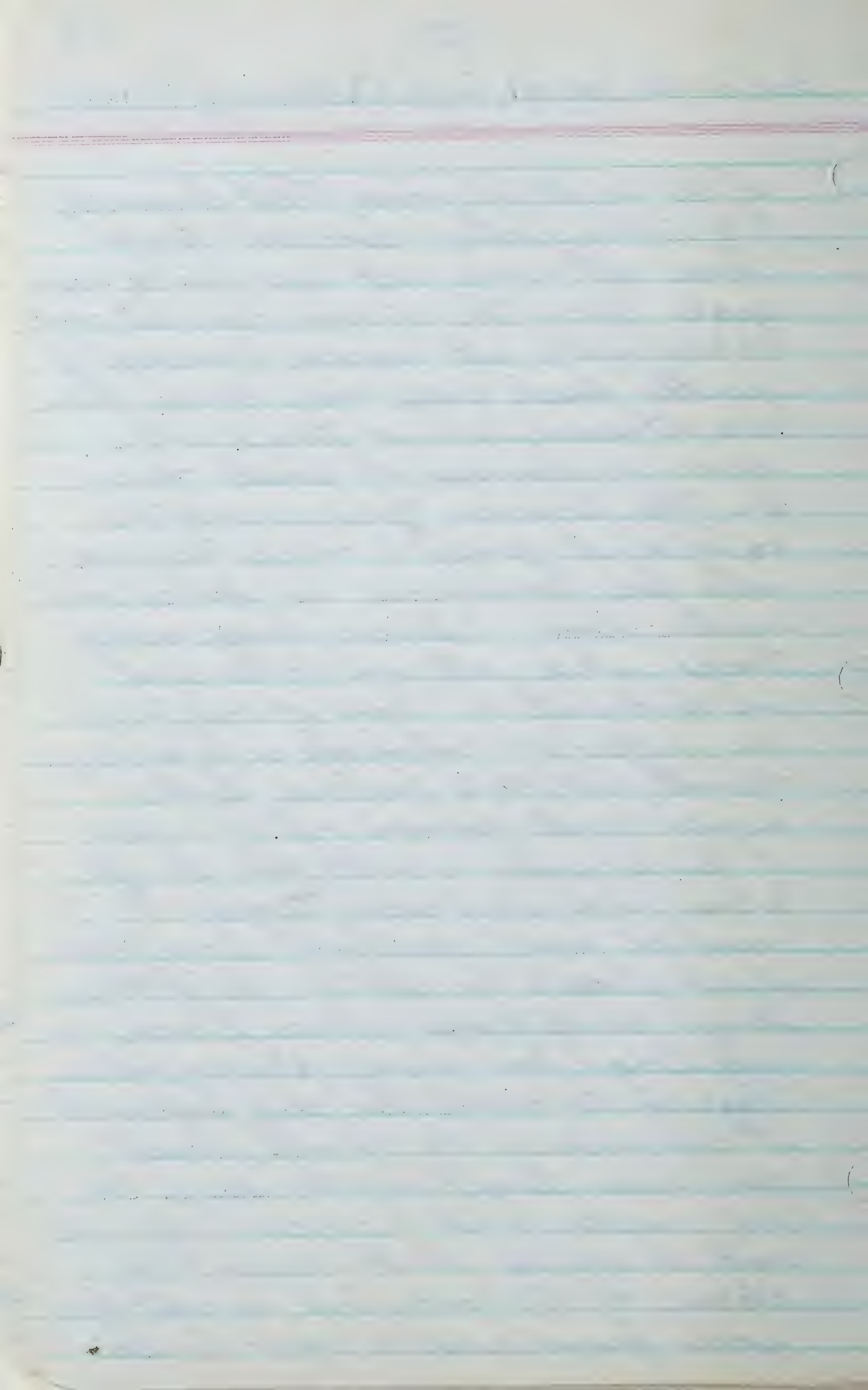
March 11, 1927- The country east of camp looked so unfavorable that I removed all my traps in the second ravine to the east, although three *Peromyscus* were taken in the small banana grove. After breakfast I struck off to the west of camp over oak and pine ridges and only finding sub-tropical vegetation along some

1927

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San Jose del Sacare, Dept., Chalatenango, Salvador

of the small streams that drained off to the north. Several traps were set were set in heavy green grass along the stream courses, and others were set under bunches of partly dead grass far back from the stream where there were some evidences of small mice. In the Sonoran zone among the oaks and pines I made several sets for *Peromyscus* in holes and under logs. Seven large snap traps were set in oaks and in holes at the base of oak trees in hopes of catching a *Glaucomys*. About 11:30 A.M. I turned to the south and passed out of a grove of pines into scrub oak, brush, grass, and steep rocky slopes. I crawled and climbed along those steep slopes to set the last three large snap traps which I had in my bag. In many places, when trying to climb the cliff, I found it necessary to climb small oak trees to get up the face. In the cracks and crevices I found rat droppings that resembled those of *Neotoma*, but except for some grass and a few weeds



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San Jose del Sacare, Dept., Chalatenango, Salvador.

dragged back into the rocks, I did not find the usual signs of *Neotoma*. Late in the afternoon I returned to the cliff with snap traps both large and small to give the place a real test as to its mammalian fauna. I saw three squirrel nests in the oaks today.

March 12, 1927 - The traps that were set along the rocky ledged cliff as possible sets for *Neotoma*, had one *Ototylomys* this morning. Another trap had *Peromyscus*, No. 12701. The ants had eaten the skin so badly that I could not put it up, therefore made a skeleton of it. It is obviously the Pacific coast lowland form.

The female *Peromyscus*, No. 12700, was caught within thirty feet of where I caught a male of that species yesterday. This is apparently a rare species in this locality.

The two *Peromyscus*, Nos. 12707 and 12708 were caught just inside of the Sonoran zone in a dry stream bed which lower down had sub-tropical vegetation. The two *Sciurus*, Nos. 12709

1927

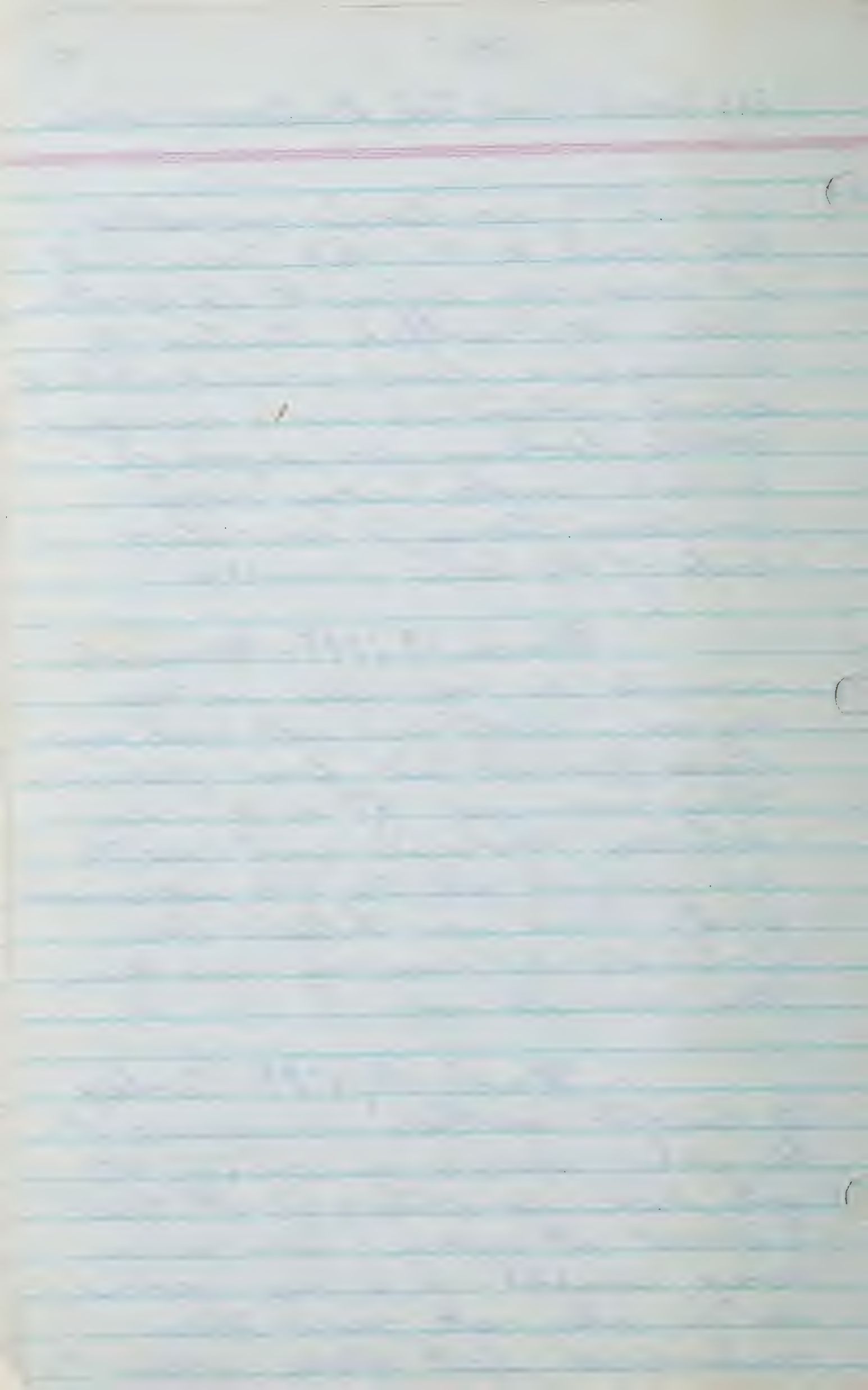
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San Jose del Sacare, Dept., Chalatenango, Salvador

and 12710 so closely resembled the bark on the oak trees that it was very difficult to locate them. One which started off through a pine was knocked down when its mate escaped. While looking for signs of *Neotoma* under some large boulders today, I saw two bats of the Genus *Glossophaga*.

March 13, 1927 - Mammals seem to be very rare in this region. Sixty five rat and mice traps turned out four specimens this morning. It is a race between the ants and me to see which gets to the specimens first. Thus far I have been fortunate to run my line before the sun gets up.

March 14, 1927 - Today I caught another *Peromyscus* of the same species as No. 12711, the ants had so destroyed it that I threw it away. This mouse was caught in a dry ravine in the oaks not more than one hundred feet from where I

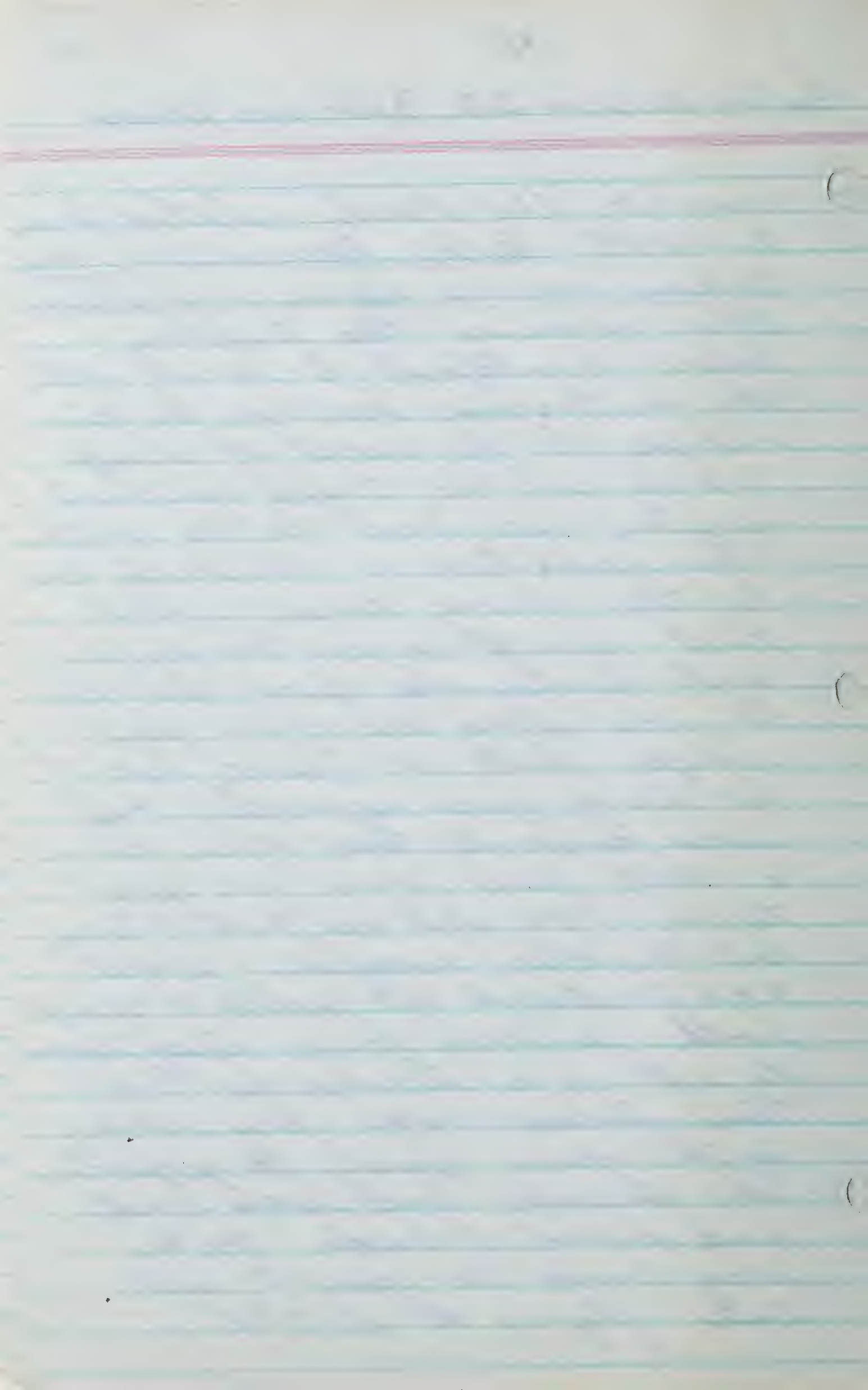


1927

P. 6

San Jose del Sacare, Dept., Chalatenango, Salvador

caught the closely related form No. 12695. Both specimens were taken in the same association. After running the trapline before breakfast, I went with Mr. van Rossem far over the pine ridges to the west of camp. Nearly all the trees in that region are bent to the south. This condition is obviously due to the strong trade winds that sweep across Honduras and Guatemala from the north. It was along one of the pine ridges that we saw two of the large gray squirrels. One was chasing the other down a tall pine when we saw them. We shot one, No. 12717, *Sciurus*, but the other escaped. About 5: P. M. I struck out north of camp with fourteen large snap traps to set in a stream for *Rheomys*. This stream was very rocky with many fairly large pools. The stream bed was wide and devoid of brush. On the way back to camp I saw bats flying at 6:10 P. M.

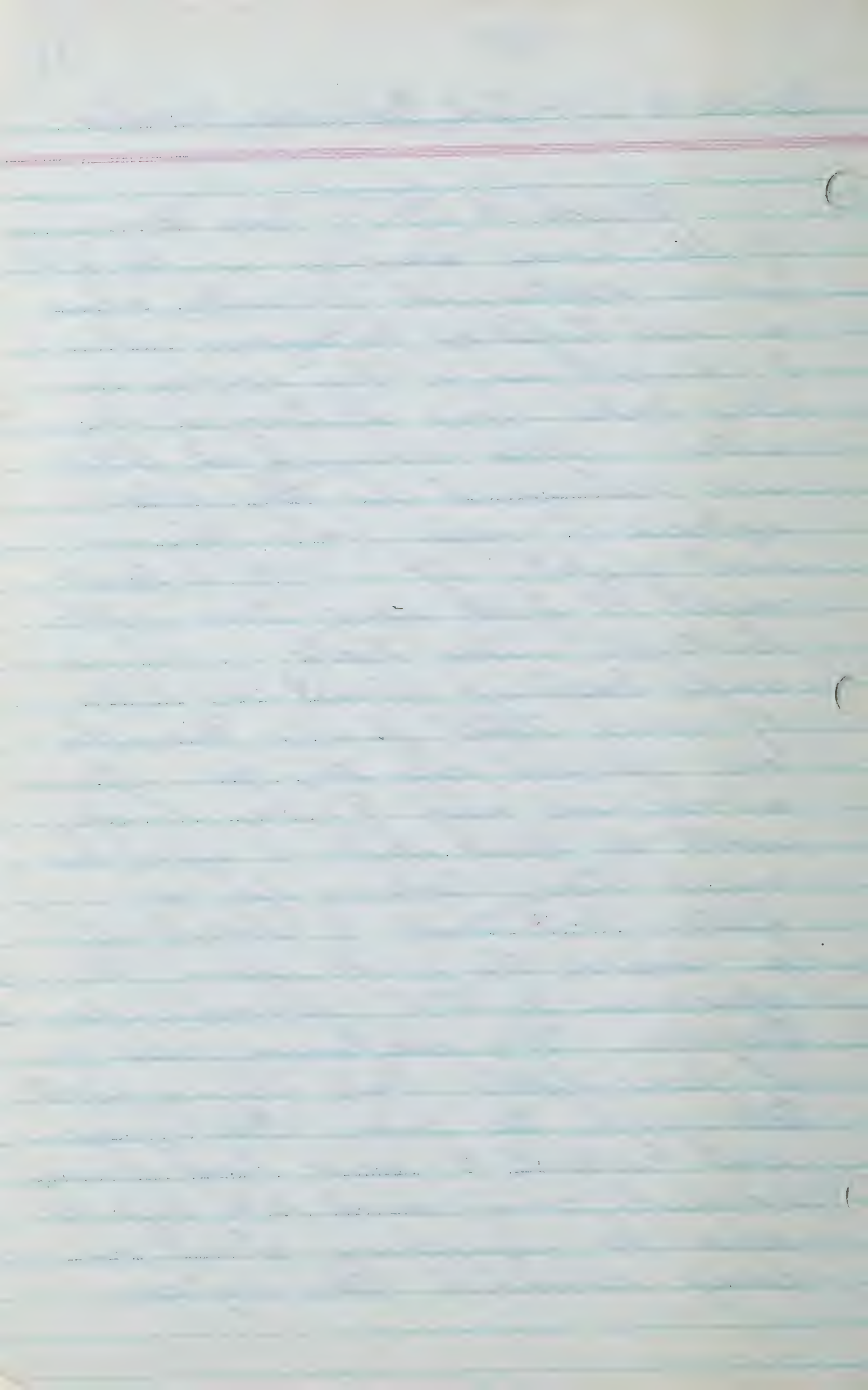


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P. 7

San Jose del Sacare, Dept., Chalatenango, Salvador

March 15, 1927- Two *Peromyscus* of the same species as No. 12723 were destroyed by ants, also a sub-tropical *Peromyscus* which I caught in a dry ravine in the oaks was destroyed by ants. This evening at 6 P.M. we returned to the place where I saw bats flying last night. At 6:10 P.M., as last night, I first saw two little butterfly like bats circling and darting about the tops of some tall pines. Finally one passed over the open space above me and I was lucky with my first shot. I spent so much time looking for my fallen bat that I didn't get a chance to shoot again. The specimen, No. 12727, proved to be *Rhogeessa*. Mr. van Rossem saw one of these little bats flying about through the oaks. One large bat which I saw last evening looked very much like *Nycteris*. Also the squeaking about our camp sounded like *Nycteris*.



1927

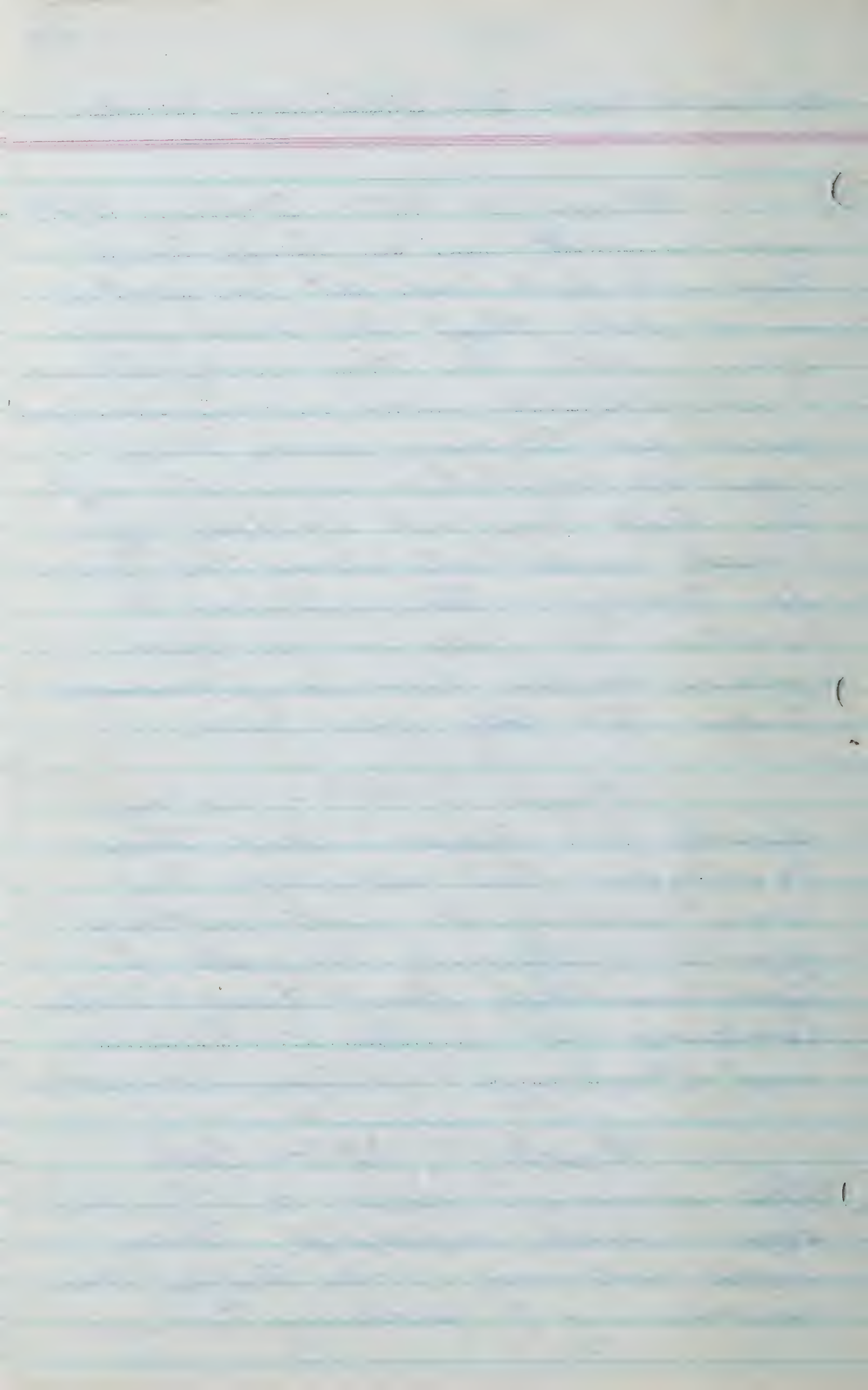
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San Jose del Sacare, Dept., Chalatenango, Salvador

March 16, 1927 - *Oryzomys*, 12729, was caught in a large snap trap which I had set in water in a hole that led back under some roots. In this rocky stream, I should say, was a very unusual place for *Oryzomys*, since there was no vegetation near the water. The trap was not baited, for I had made sets along the stream for *Rheomys*. This evening I waited for bats in an open space near two large mango trees. No bats were seen.

March 17, 1927 - In my seventy five traps I had three *Peromyscus* this morning. One was destroyed and another partly destroyed by ants. I took another long tramp today looking for signs of *Neotoma* and *Galeomys*. Nothing was seen.

March 18, 1927 - Early this morning I saw a *Sciurus deppii* which escaped. There was nothing in the traps this morning. Packing today.



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Pl.

Barra de Santiago, Dept., Ahuachapan, Salvador

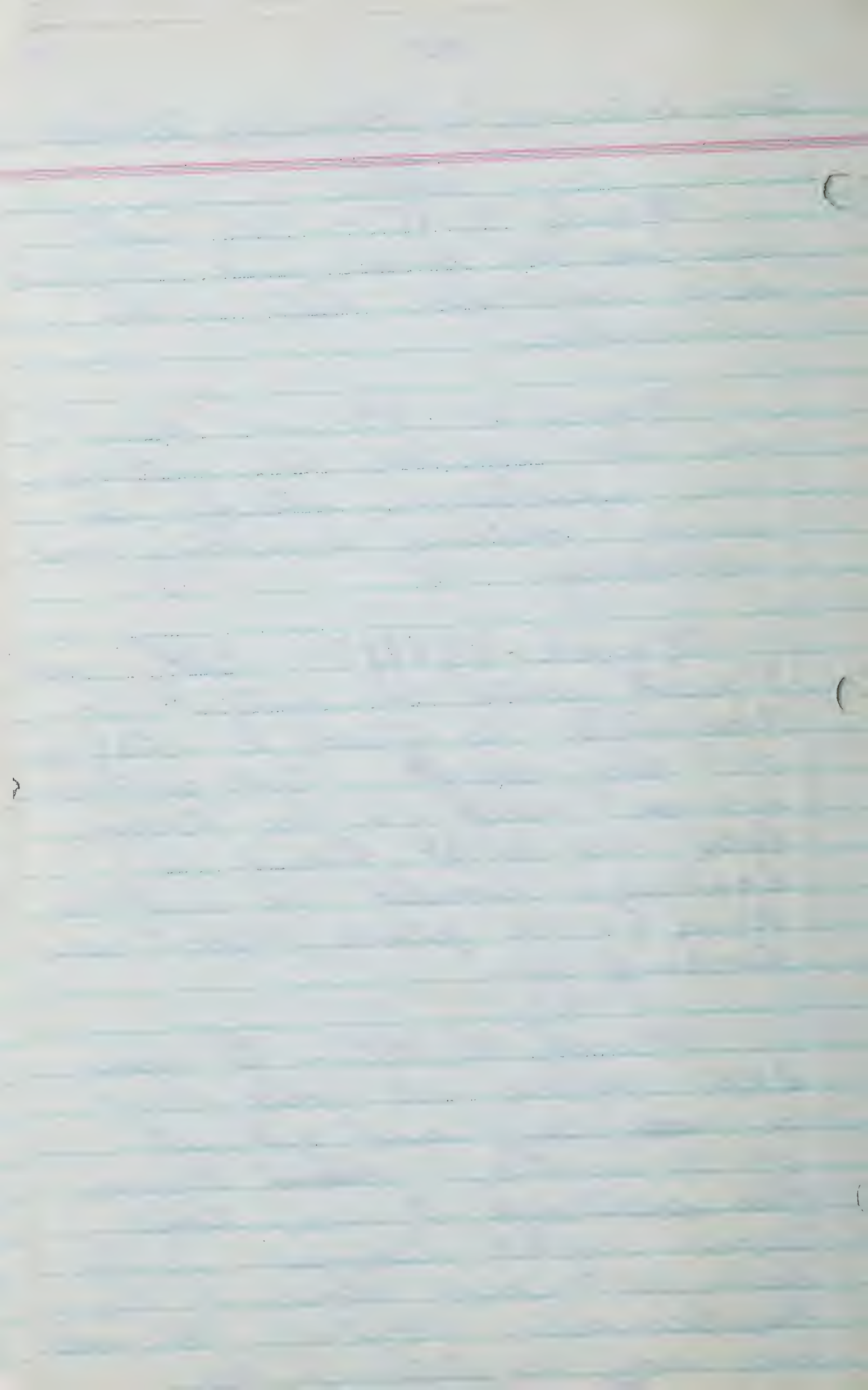
1927

March 19, 1927 - We left San Jose del Sacre and reached San Salvador late in the afternoon.

March 20 - 25 - we spent in the capital city getting our specimens ready to ship, eating, drinking, and sleeping.

March - 26, 1927 - Geo. S. and I left with the outfit for Acajutla to find a station on the coast. Two gentlemen who I met on the train told me that Barra de Santiago would be just the kind of a place that I was looking for.

March 27, 1927 - It was 2 P.M. before we could hire a ~~car~~ car and get out of Acajutla. Barra de Santiago, I was told, was eight leagues up the Salvador coast toward the Guatemalan border. We made over half the distance by



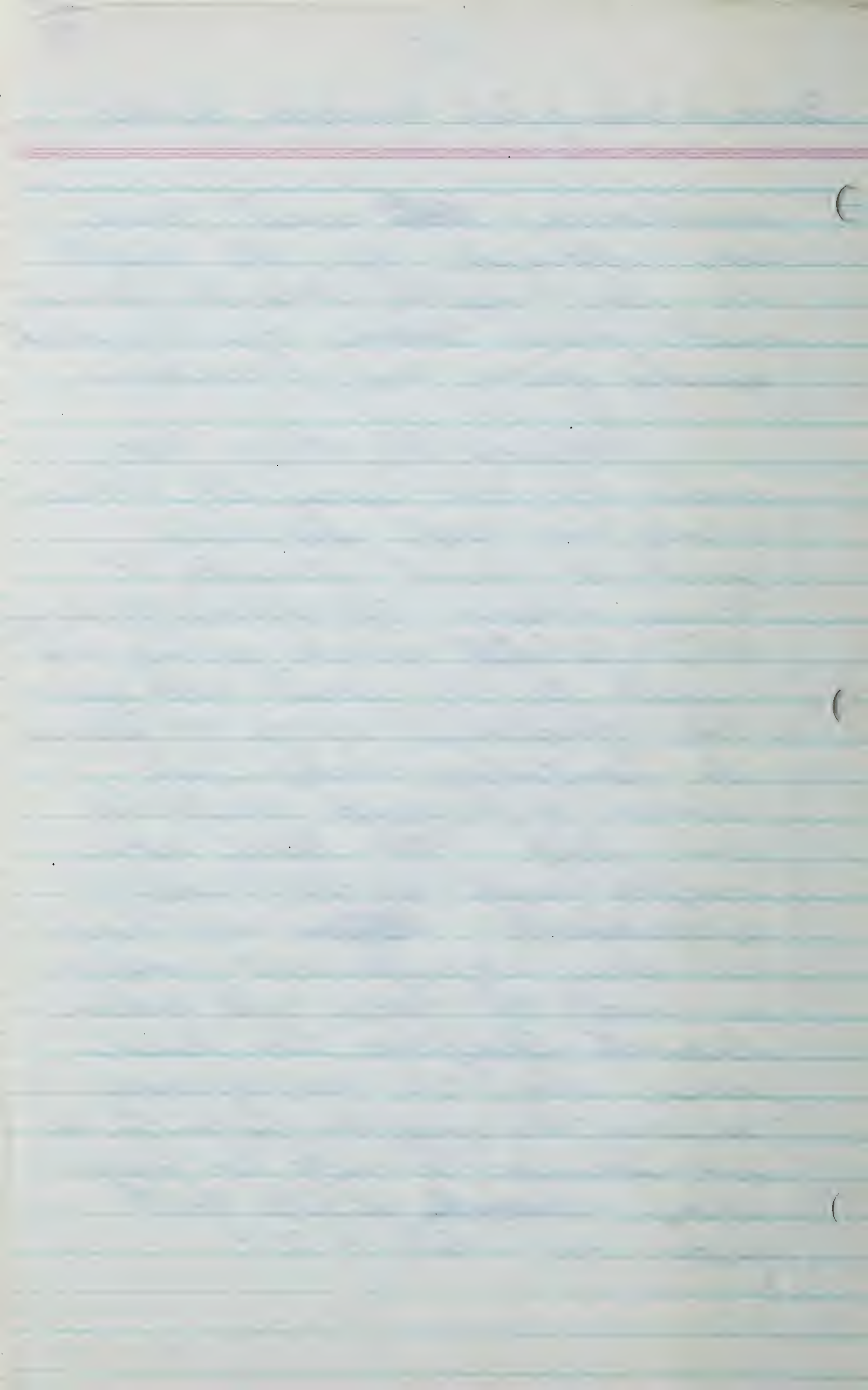
1927

P2.

Barra de Santiago, Dept., Ahuachapan, Salvador

sundown ~~but~~ and there we stayed for the night on the salty beach sand not more than one hundred yards from the breakers.

March 27, 1927 - We were on our way at three o'clock the next morning. Just as faint streaks of gray began to show through the clouds ~~at~~ back along the coast to the east we saw the thatched roofs of Barra de Santiago show up above the sand bank to our left. We had some coffee and sweet bread for breakfast. ~~Before~~ we had all our equipment under a roof of cocoa nut palm leaves before the sun rose over the mangroves across the lagoon which we found to not be more than ~~twenty~~ fifty feet from our hut.



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P.3.

Barra de Santiago, Dept., Ahuachapán, Salvador

March 28, 1927 - The natives here drive their wooden canoes or dugouts about the net work of tidal channels or lagoon by means of a long pole. We hired a canoe today and went off to look over the mangroves. Instead of taking a direct course (as most of the natives do) we spent most of our time going around in circles. At last we pushed into a narrow channel and here we made more progress for when we ran on the sand we would push off toward the other side. Before we ~~ever~~ started circling. We saw hundreds of Raccoon tracks Procyon in the salty mud under the mangrove roots. The mangrove roots were from three to seven feet high, and one could make fairly good progress climbing over them. Some roots that I saw

1. The first part of the paper is devoted to a general discussion of the problem.

2. In the second part, we shall consider the case of a homogeneous medium.

3. The third part is devoted to the study of the properties of the solutions.

4. In the fourth part, we shall discuss the question of the stability of the solutions.

5. The fifth part is devoted to the study of the asymptotic behavior of the solutions.

6. In the sixth part, we shall consider the case of a heterogeneous medium.

7. The seventh part is devoted to the study of the properties of the solutions.

8. In the eighth part, we shall discuss the question of the stability of the solutions.

9. The ninth part is devoted to the study of the asymptotic behavior of the solutions.

10. In the tenth part, we shall consider the case of a heterogeneous medium.

11. The eleventh part is devoted to the study of the properties of the solutions.

12. In the twelfth part, we shall discuss the question of the stability of the solutions.

13. The thirteenth part is devoted to the study of the asymptotic behavior of the solutions.

14. In the fourteenth part, we shall consider the case of a heterogeneous medium.

15. The fifteenth part is devoted to the study of the properties of the solutions.

16. In the sixteenth part, we shall discuss the question of the stability of the solutions.

17. The seventeenth part is devoted to the study of the asymptotic behavior of the solutions.

18. In the eighteenth part, we shall consider the case of a heterogeneous medium.

19. The nineteenth part is devoted to the study of the properties of the solutions.

20. In the twentieth part, we shall discuss the question of the stability of the solutions.

1927

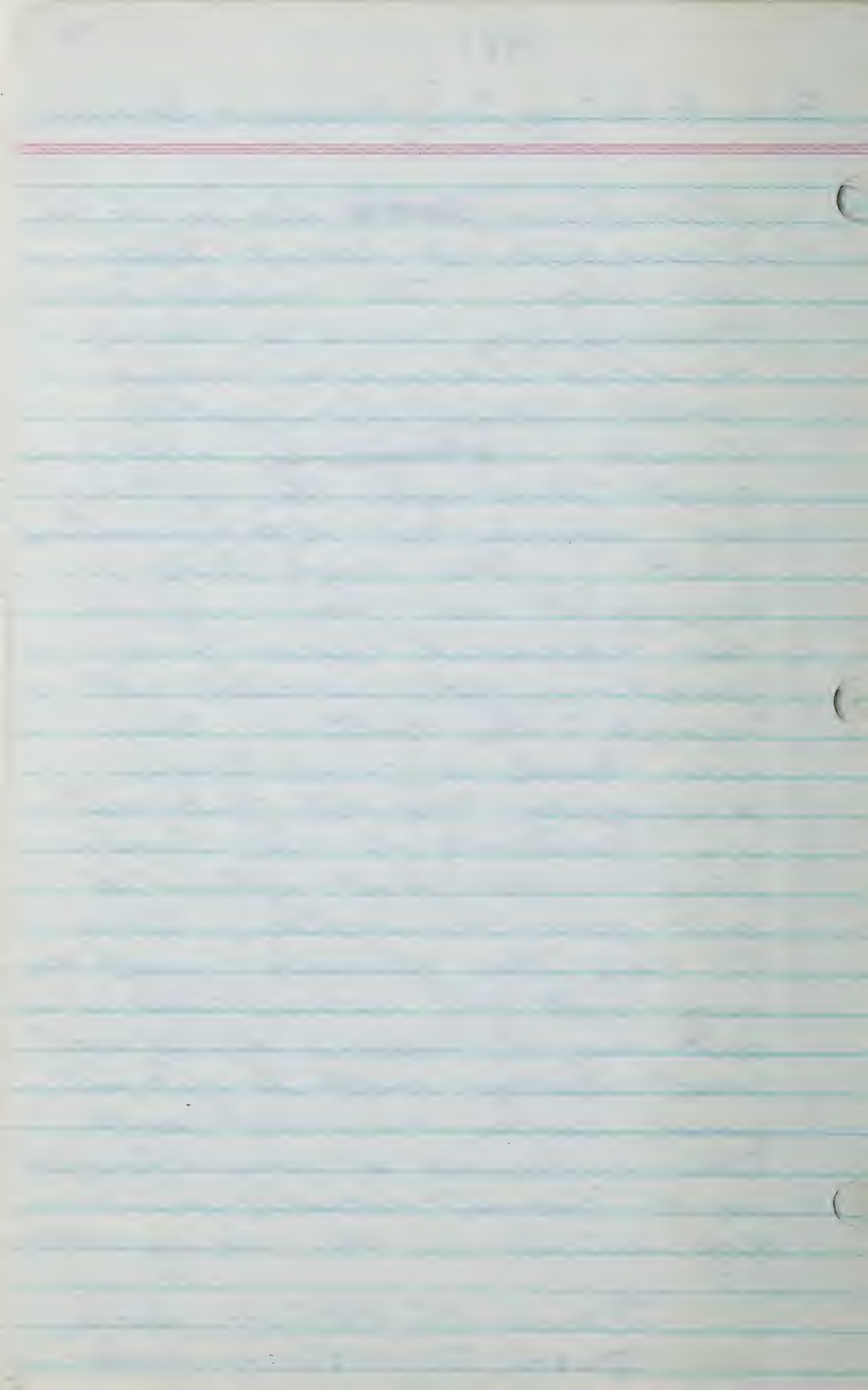
P. 4.

Barra de Santiago, Dept., Ahuachapan, Salvador

extending ~~down~~ down from branches at least fifty feet high. The mangroves themselves were a more or less tangled mass with large horizontal limbs ~~extending~~ reaching out through the foliage as much as one hundred feet. The high tide caught us far up in the channel and our pushing pole would not reach the bottom, thus we had a nice time dragging the old tub out by pulling on the limbs and roots that extended out over the water. Then to cap the climax, just as we got out where the wind hit us, I nearly "keeled over" and George had to get out and swim her into camp. This evening a boy brought us a Procyon which his dog killed in the mangroves.

March 29, 1927 - Sick.

March 30, 1927 - Sick.



1927

P. 5.

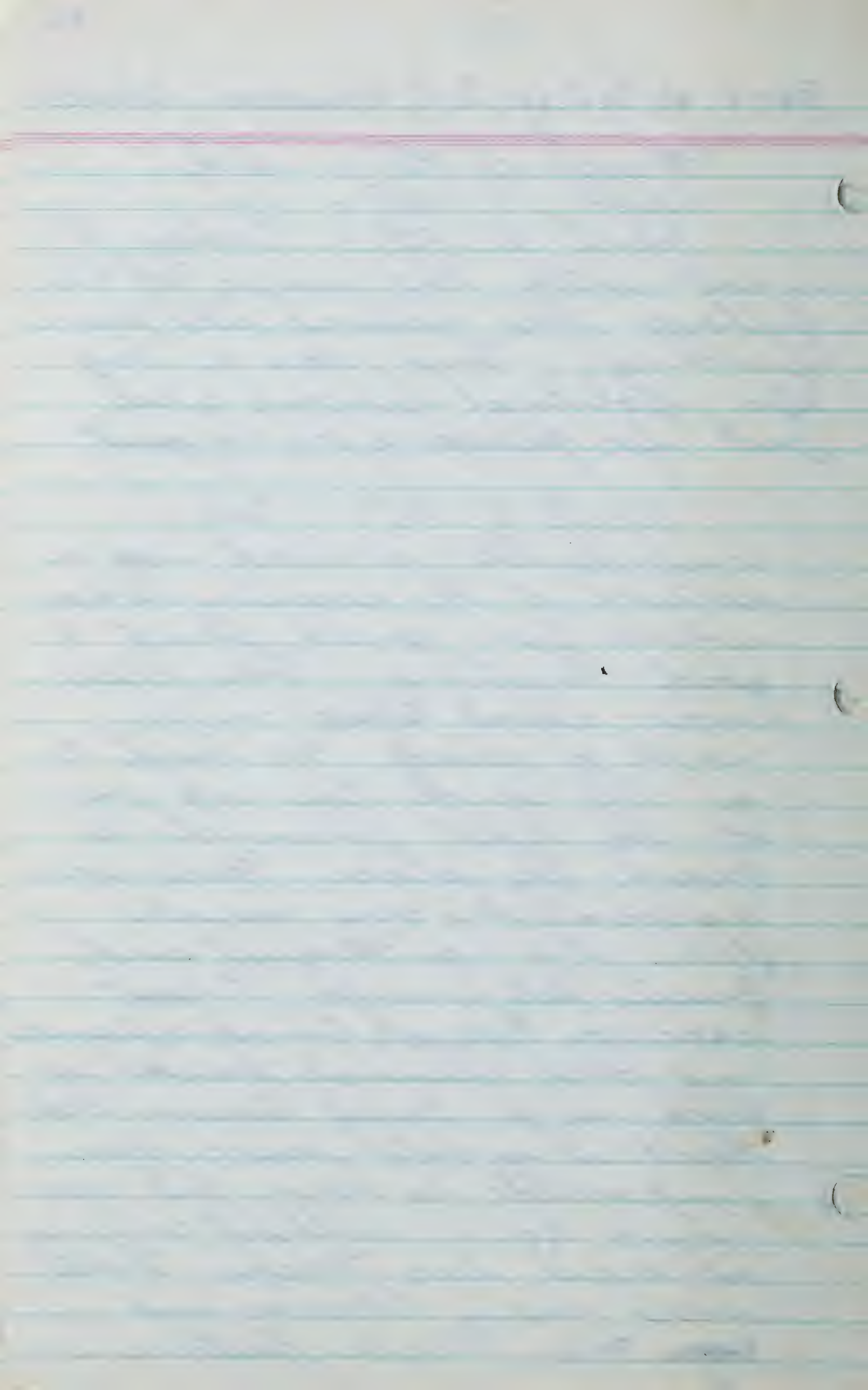
Barra de Santiago, Dept., Atluachapan, Salvador

March 31, 1927 - Sick

April 1, 1927 - "

April 2, 1927 - Today I went with the mayor of the village the natives at their fishing. This was a trip for political reasons and not for pleasure on my part.

April 3, 1927 - The comandante showed ~~us~~ a section of the country today where we could find good hunting. This place was about two miles north of camp. We had to go by canoe far up one of the tidal channels to reach the place. There were associations very much like Rio San Miguel and Puerto del Triunfo. I saw raccoon Procyon, Cuniculus, Dasypus, and other mammal tracks so thick in a damp stream bed that it would have been impossible to have put one's hand down without covering at least two tracks. There were many Odocoileus and ~~Tagia~~ Pecari tracks farther.



1927

P. 6.

Barra de Santiago, Dept., Ahuachapan, Salvador

back in the brush. While hunting along the upper edge of the mangroves last night we killed three *Procyon cancrivorus*. At the edge of the jungle we saw five *Metachirops* one which we caught with our hands.

April 4, 1927- Last night we saw five *Metachirops* while hunting. Our guns shattered the skulls of those we shot so we caught one with our hands. No. 752. I have seen *Metachirops* tracks along the fresh water streams in the swamp forest as well as in the mangroves. Mr. van Rossem shot a *Saccopteryx bilineata* which he poked out of a hollow tree beyond the mangroves. The bird was slipping when he reached camp with it. Last night I saw bats flying about before our lamps.

The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The second part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The third part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The fourth part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The fifth part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The sixth part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The seventh part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The eighth part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The ninth part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The tenth part of the paper is devoted to a discussion of the details of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts.

1927

P.7.

Barra de Santiago, Dept., Ahuachapan, Salvador

April 5, 1927 - The mangroves are literally alive with *Procyon cancrivorus*. Early this morning five squirrels were seen in a mango tree where they were feeding on green mango fruit. The four that were killed were males, Nos. 12760 to 12763 inclusive. While hunting through the swamp forest today and while looking at my traps I saw three *Hasyprocta*, but was unable to shoot them as I only got glimpses of them here and there as they dashed through the ~~p~~ collol palms.

April 6, 1927 - The only thing of interest today was the collecting of *Nyctomys* No. 12765, which was taken on a leaning tree in the swamp forest.

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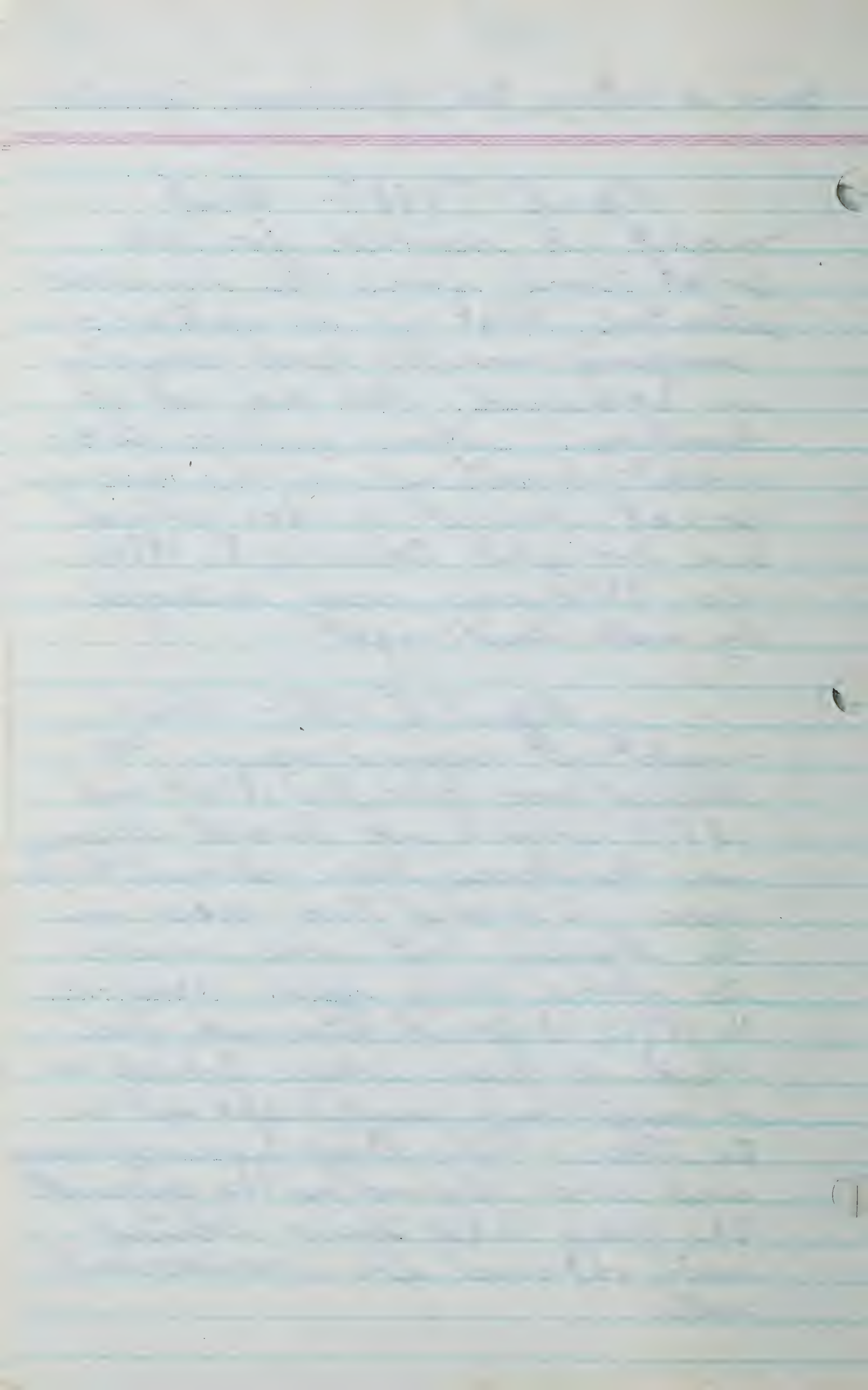
1927

P. 8.

Barra de Santiago, Dept., Ahuachapan, Salvador

April 7, 1927- Last night it rained for the first time since the dry season started, that is as far as our camping in the low country is concerned. We did not go hunting. Some native who went hunting in the swamp forest killed a doe which we bought. *Odocoiles* No. 12766. An *Ototolyomys* was destroyed by ants last night.

April 8, 1927- Last night it rained again. We killed two Potos, Nos 12769 and 12770 which we heard screaming in the trees, then shined their eyes. I heard two deer in the brush but was unable to shine their eyes. *Vampyrus*, No. 12775, I found stunned and bleeding near where I had one of my large snap traps set in a tree. The trap was sprung and was lying on the ground. The trap had been baited with oatmeal for scansional rats.

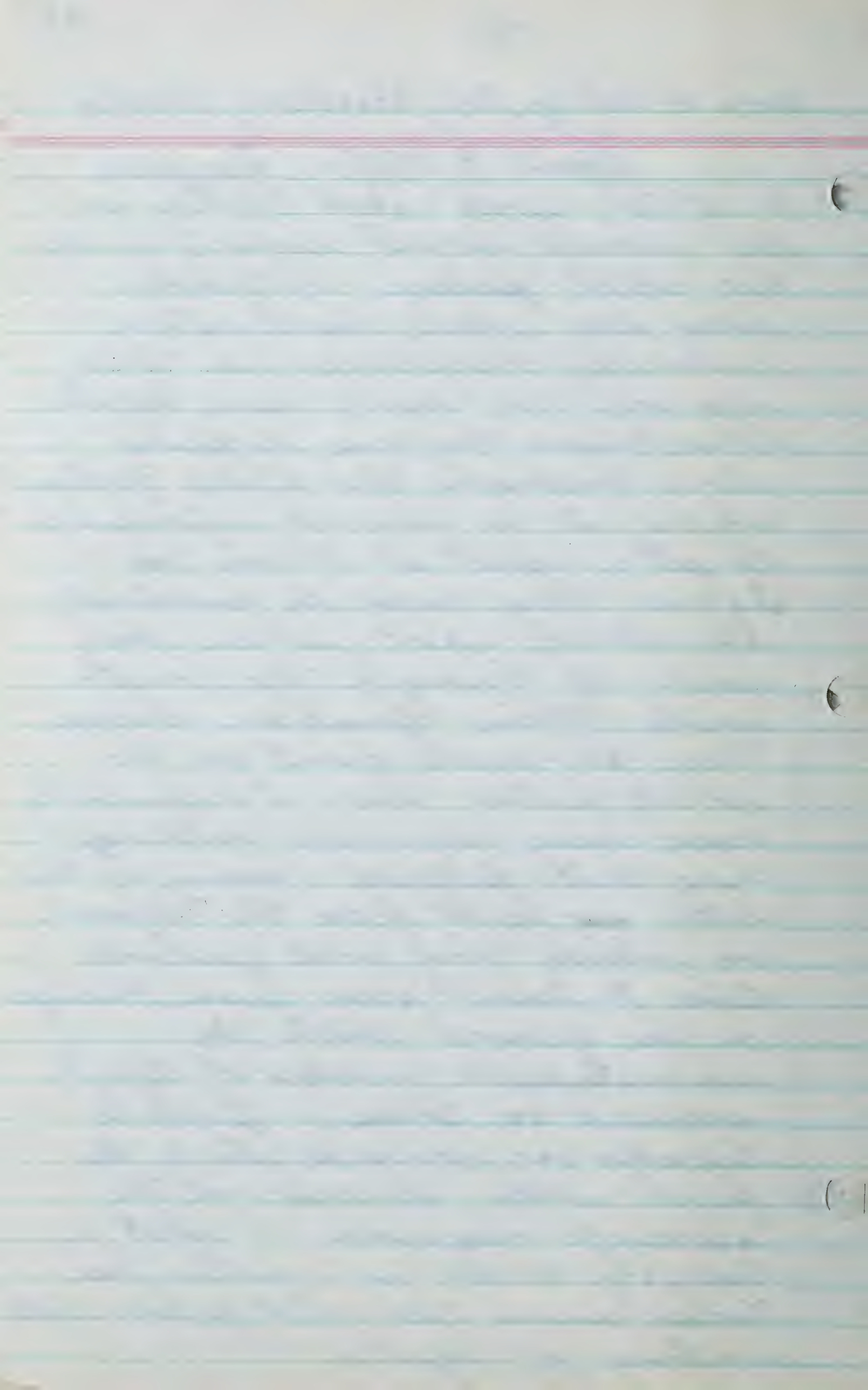


1927

P. 9.

Barra de Santiago, Dept., Ahuachapan, Salvador

April 9, 1927 - *Hasyprocta*
No. 12776, was shot today in
the swamp forest region under
the collol palms. Nearly
every day while hunting for
running traplines in this
region we have seen *Agoutis*.
Sometimes they are hopping
along through the dense palms
where it is almost impossible
to get a shot at them. ~~on~~
Again they may be suddenly
stumbled upon when they
dash off through the brush
with their familiar barks.
There is much fruit on the
collol palms now. I frequently
have seen squirrels feeding
there that dropped many of the
little ~~on~~ balls from the bunch
on which they were feeding.
Also I have seen green mangoes
on the ground with the
unmistakable marks of *Agouti*
incisors on them. *Agouti*
tracks are common along the
fresh water streams in the
swamp region. I shot a
Saccopteryx bilineata in a hollow tree
today among the collol palms while
hunting for *Agoutis*.



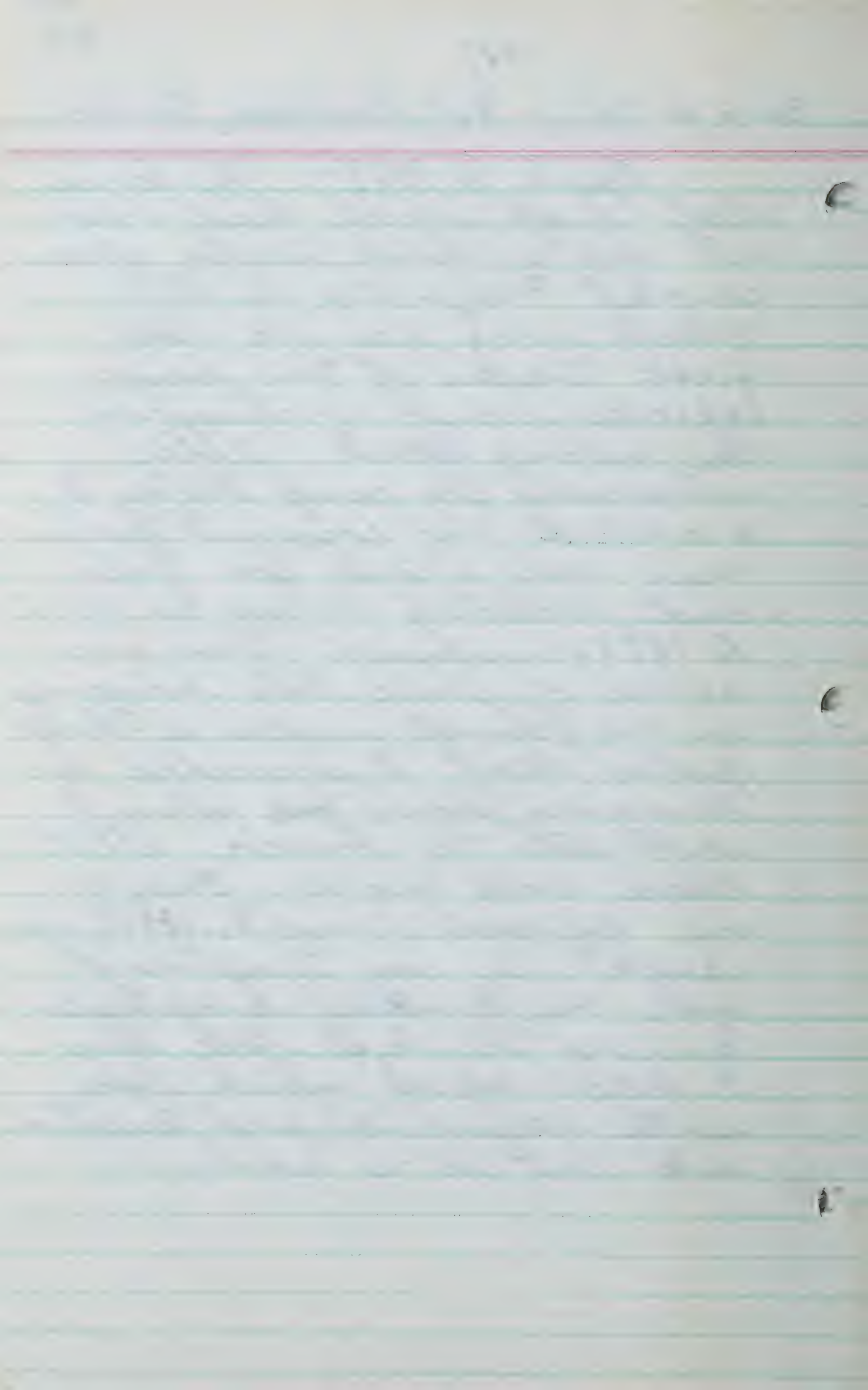
1927

P. 10.

Barra de Santiago, Dept., Ahuachapan, Salvador

April 10, 1927 - A large steel trap which had been set in a fresh water stream caught *Procyon lotor*, No. 12781.

Nearly every day we saw fresh tracks of this larger species while working in the swamp forest. After returning to camp today I searched the coconut palms near our shack for bats and collected *Artibeus* Nos. 12782 to 12786 inclusive. There were seven of these bats hanging in one clump under a huge palm leaf. I succeeded in bringing down five when I shot into the bunch. All of these were males. Only one mammal, *Lionys* No. 12780, was caught in my trapline of over one hundred snap traps. During the last few days I have spent much time with scansorial and terrestrial sets but to no avail.



1927

P. 11.

Barra de Santiago, Dept., Ahuachapan, Salvador

April 11, 1927 - Nothing in the traps today. I succeeded in killing three *Uroderma*, Nos. 12787, 12788, and 12789, under coconut palm leaves, ~~to-day~~ Two escaped. Three were hanging under one leaf and two under another. They were about eight to ten inches apart.

April 12, 1927 - I found two *Glossophaga*, Nos. 12790 and 12791, in a hollow tree near where I killed a *Saccopteryx* several days ago. Some young turkeys grabbed the skulls when I had them in water to soak out the blood. H.D.S. caught another *Procyon lotor*, No. 12792, in the clear water streams in the swamp forest. Traps set in a large bunch of rosin-like weeds in the fresh water region of the swamp forest had an opossum, *Didelphis mesamericanus* No. 12793.

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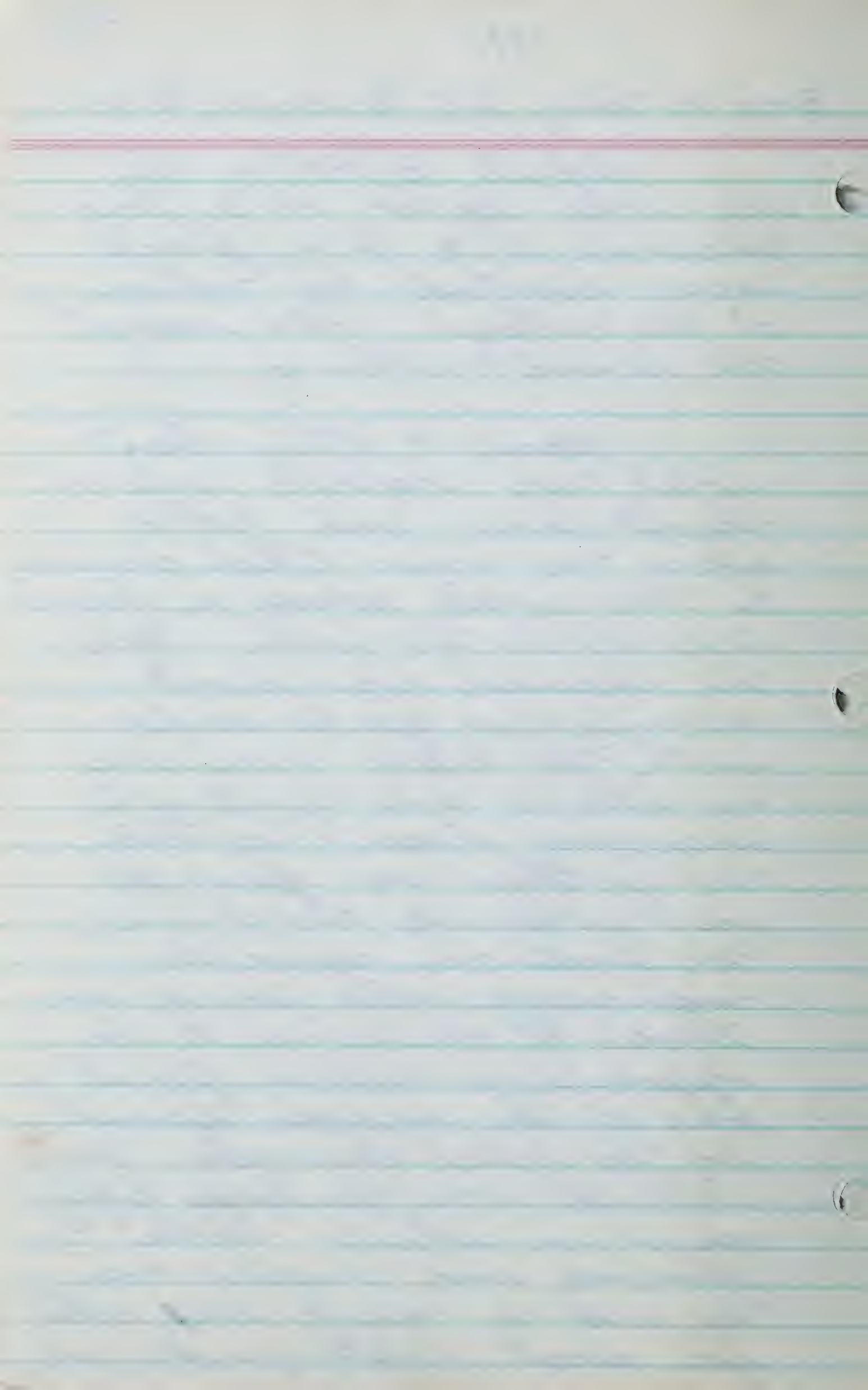
1927

P. 12.

Barra de Santiago, Dept., Ahauchapan, Salvador

April 13, 1927 - The day was spent on a long tiresome trip to a place were directed by natives of the village. As usual we found nothing.

April 14, 1926. - Last night we crawled into our dugout canoe and poled down the main tidal channel to the west where a branch led off to the north. Here the channel was about seventy five yards wide with the dense mangroves on either side gradually drawing closer together the farther we pushed our way up the channel. We tied our canoe to mangrove roots when we thought ourselves to be opposite a certain point on one of the islands formed by the tidal channels. This island was perhaps fifty acres in extent. After climbing and slipping over the arched mangrove roots for about fifty yards we



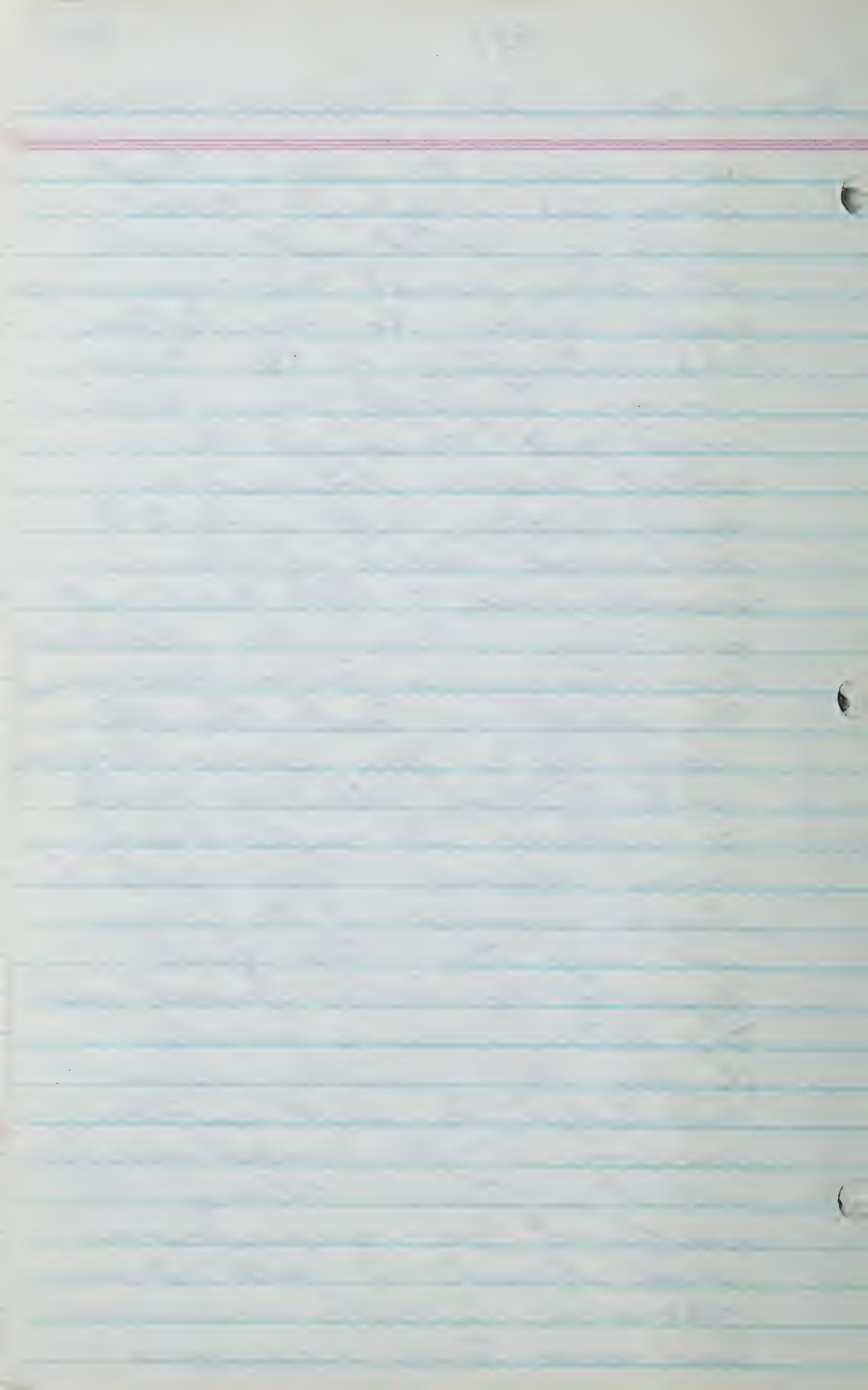
1927

P. 13

Barra de Santiago, Dept., Ahuachapan, Salvador

we came to soil that even the highest tidal waters could not reach.

At this point the mangroves gave away to vegetation characteristic of the Arid lower Tropical Zone. H.D.S. went out through the collol palms toward a fresh water hole while I followed edge of the mangroves. H.D.S. had not gone far when he flashed two raccoons, *Procyon cancrivorus*. We shot one and the other ran off a few paces stopped and then started back to where its mate had been slain. This foolish trick caused it to loose its life too. The first proved to be a female and the latter was a male. A few feet farther along his trail he shot another raccoon of this small species out of a tree. Along the edge of the mangroves and brush I killed an opossum *Didelphis mesamericana* and saw two raccoons.



1927

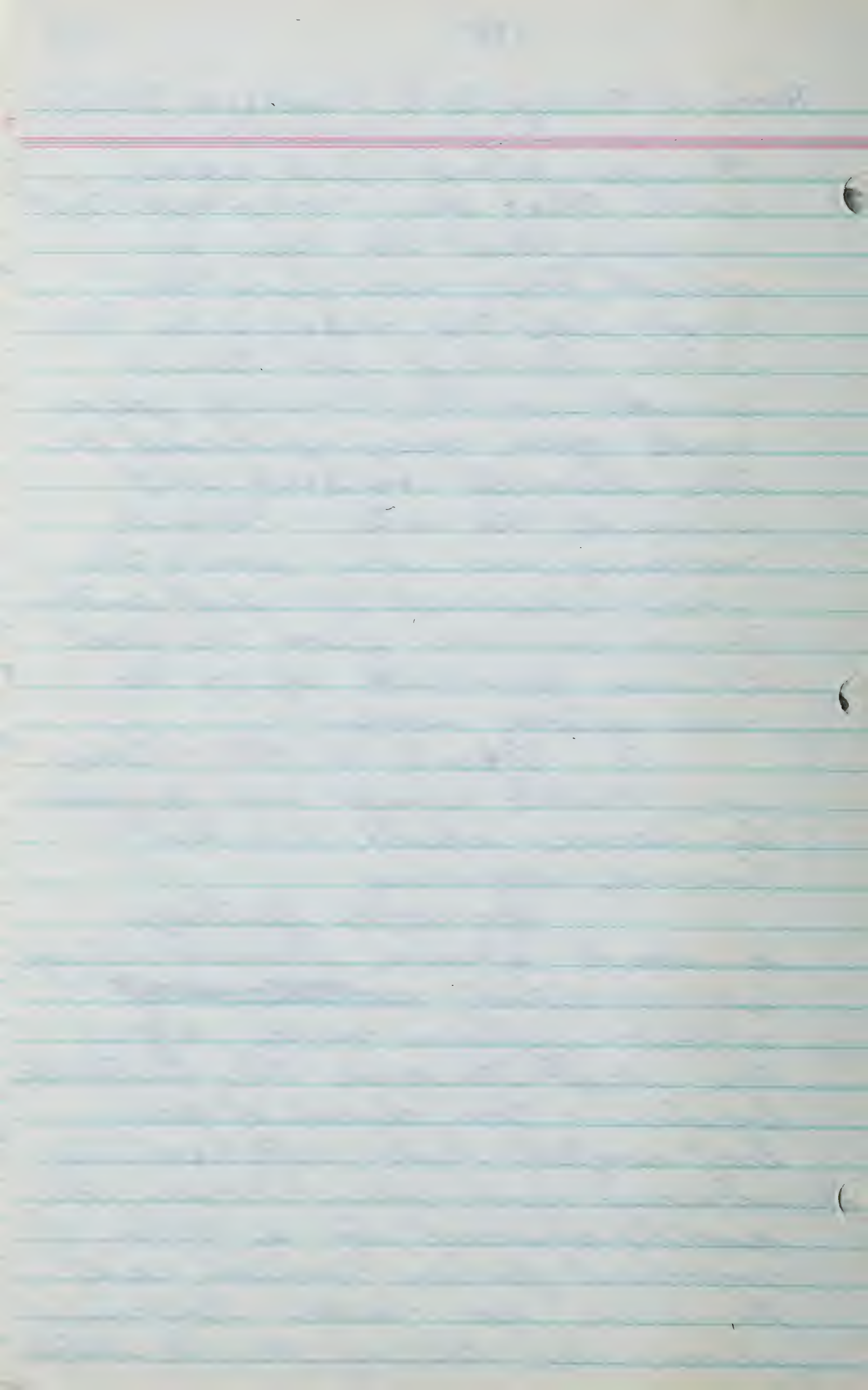
P. 14.

Barra de Santiago, Dept., Ahuachapan, Salvador

It was along this same path that our native assistant swears that he saw an ocelot, *Felis*, cross from the brush into the mangroves. We both hunted for three hours in the brush grass and open grazing land on the sandy island but shined no cats. While making our way down the tidal channel I shot another *Procyon cancrivorus* from the boat. It was perched up on the mangrove roots.

April 15, 1927 - Today we broke camp and prepared to leave which we did toward evening.

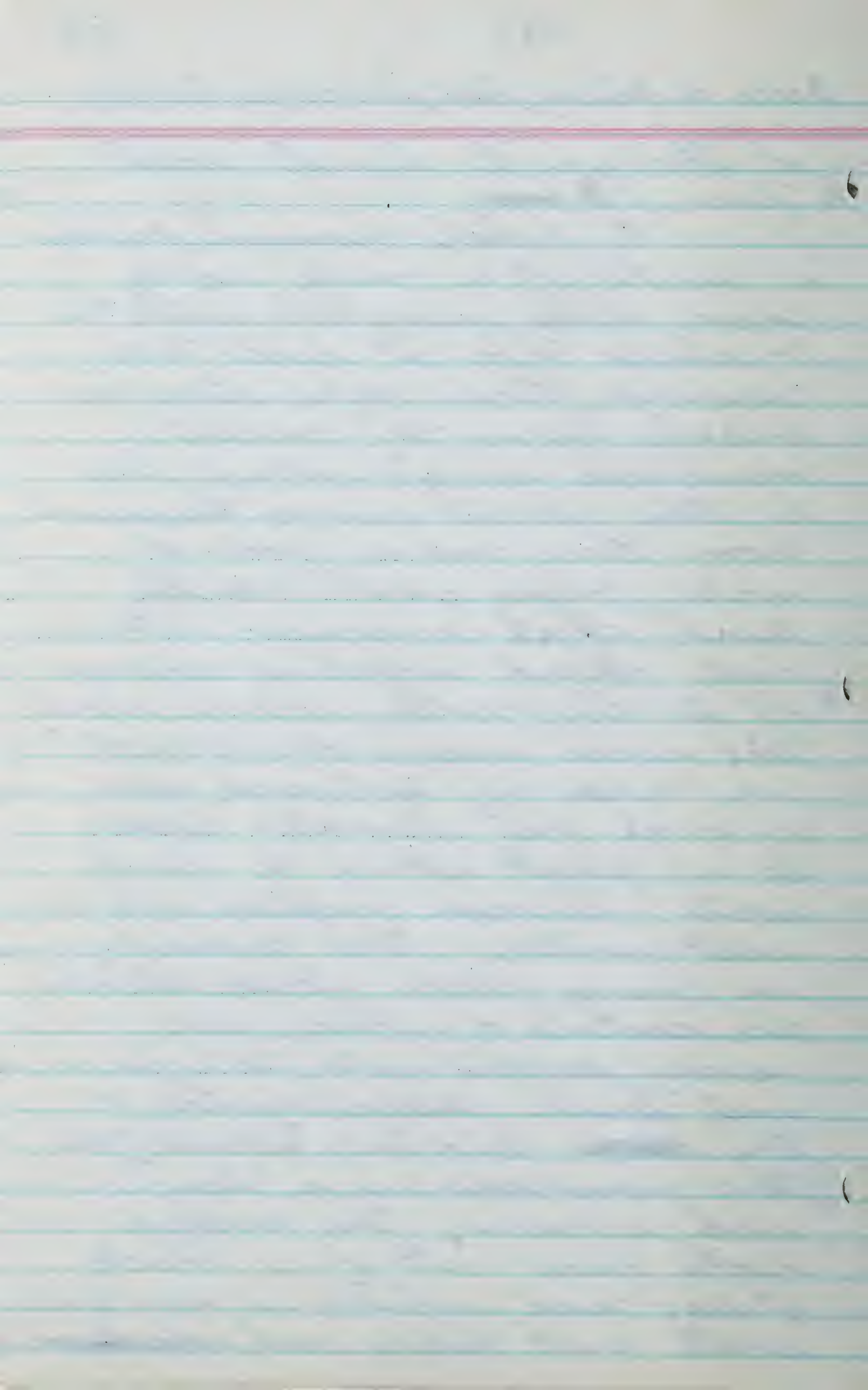
Barra de Santiago a sand strewn fishing village is located ~~on the coast~~ about fifteen miles along the coast toward the Guatemalan border. The clump of palm leaf roofed huts, representing so many fishermen homes, are partly shaded by a grove of cocoanut palms, which can be seen for miles towering above the thorny brush back



Barra de Santiago, Dept., Ahuachapan, Salvador

of the sand duned coast
line. ~~was~~

A tidal channel, perhaps a quarter of a mile wide, runs along parallel with the breakers for at least two leagues, thus separating the beach from the main mangrove jungle which lies to the north across the channel. From this main body of water, many small canals break off at irregular intervals, and lead winding courses off to the north where slowly the dense mangroves crowd in and if followed far enough one usually comes to a point where a fresh water stream empties into the salt water. The channels, in many places, form islands, the centers of which are sandy, covered with tall grass, and bush characteristic of the ~~tropical~~ Arid Lower Tropical Zone. The mangroves are a tangle and a mess. The arched roots grow out of a black sticky mud, which is ramified with crab holes and ~~entrained~~.



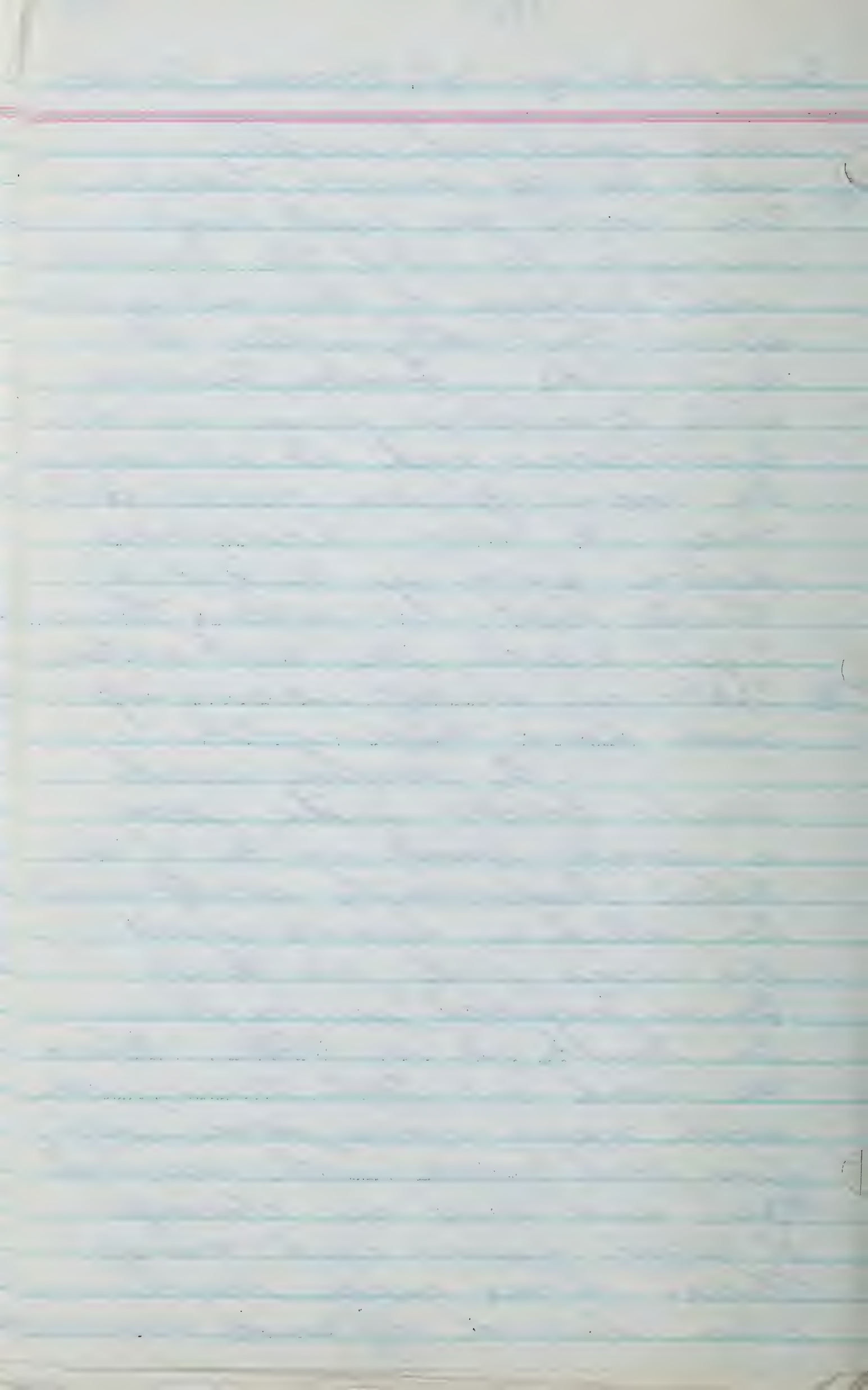
1927

P. 16

Barra de Santiago, Dept., Ahuachapan, Salvador

and spattered with crab-eating raccoon tracks. The roots are just high enough to hold the branches and foliage of the mangroves above the salt water at high tide. Limbs, trunks, and branches run in all directions and at all angles. In many places aerial roots may be seen dangling down from a height of thirty feet to where their tips reach the salt water. Crabs are always racing up and down these roots.

A carreta road leads back ~~into~~ from a sandy bank on one of the tidal channels, to what might be called a swamp forest by some and an Arid Lower Tropical Zone by others. In truth it is both. Along the road are tall trees, some with many vines, some with few, and some with none at all. Here and there are clumps of collol palms and mango trees. Some areas have been cleared off and are now



1927

P. 17.

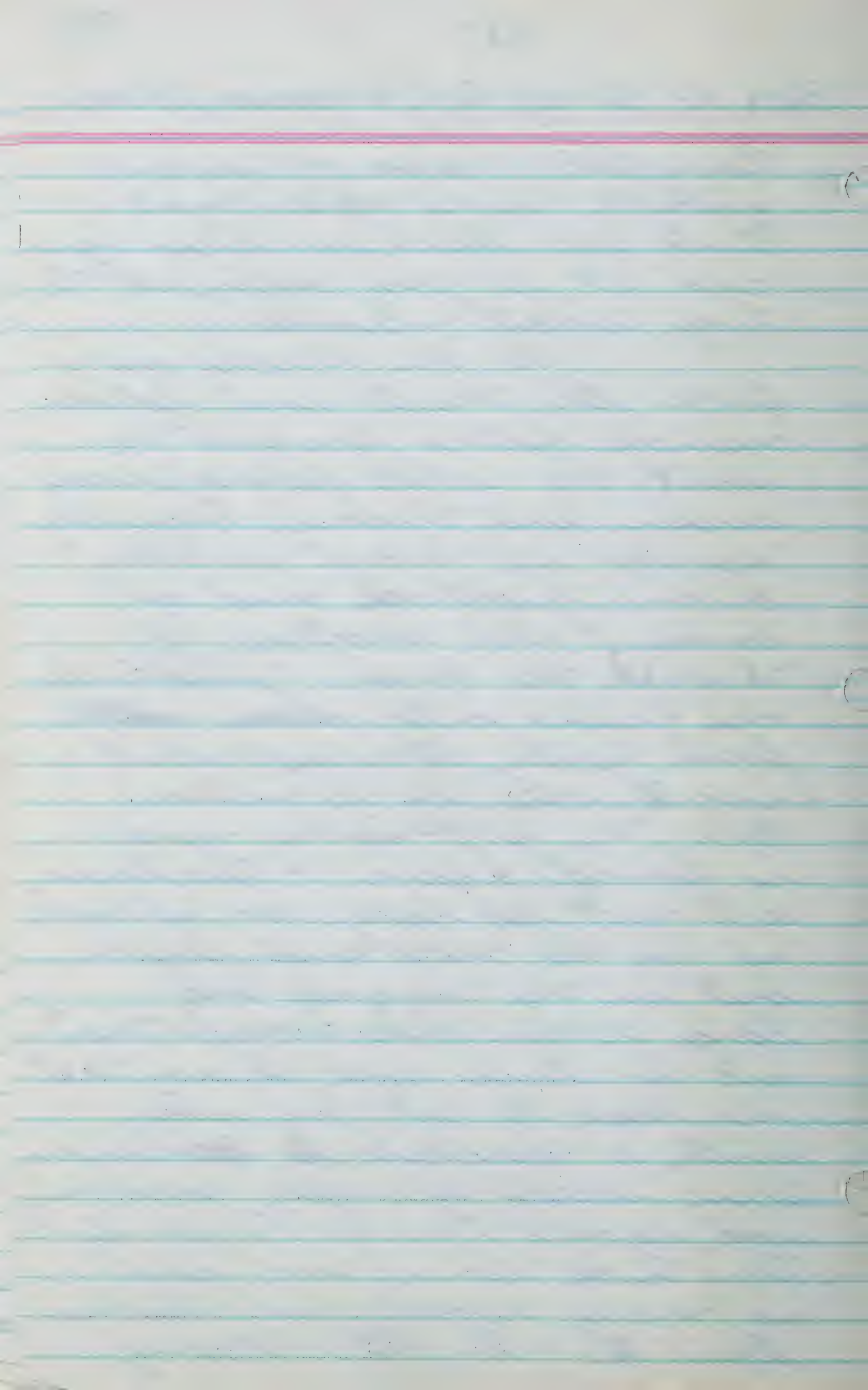
Barra de Santiago, Dept., Atluachapan, Salvador

tangled mass of second growth vines and brush.

Ants are thick in this region and it is very difficult to trap small mammals.

As one breaks away from the trail and follows narrow paths toward the west, the collol palms become denser and thicker. Frequently agoutis are heard as they become frightened and go barking and snorting off through the brush. Suddenly one runs onto ~~clear water~~ fresh water streams, (called sweet water by the natives.) Here the soft sticky mud is found again. The trees are not so large or so thick as in the more arid region, but in the swamp are large rosin like weeds that are so dense and heavy that one has to cut his way with a machete. ~~to~~ Under these weeds are pig, raccoon, and agouti tracks "a plenty." This was where we saw so many wood rail tracks.

April 20 - 21, 1927 Moving.



1927

P. 1

Hacienda Chilata, Dept., Sonsonate, Salvador

April 21, 1927 - yesterday
I set twenty five large snap
traps in the balsam coffee
region about our camp.
Seven were set in trees
that looked as likely places
for Nyctomys. The other eighteen
were set in an uncleared
area where long vines and
horizontal limbs offered good
places to make sets. Ten
small traps were set
by rotten logs and tree roots
under the coffee. Three
Nyctomys were caught last
night. No. 12809 was taken in
a trap which I had set in
a semi-hollow tree at the
edge of a carreta trail which
led around through the coffee.
The trap was set about seven
feet from the ground. I found
the specimen and trap among
fallen coffee leaves several
yards down hill. No. 12810 was
caught in the uncleared
area ~~on~~ the crest of a hill.
This trap was set on a
small branch that connected
with the brush on the other



1927

P. 2

Hacienda Chilata, Dept., Sonsonate, Salvador

side of a narrow trail which had been cleared through the brush. The specimen was lying on dead leaves on the ground below. The third *Nyctomys* was caught in a trap which I had set on a dead limb that lay horizontally through some vines. The trap with the rat had fallen down on some dead trash. The rat was absolutely destroyed by ants. Since the trap had crushed the basal part of the skull I didn't even save the skeleton. *Reithrodontomys* No. 12805, was caught in a large snap trap which I had set on a limb about twenty five feet high. Although the trap had fallen down among the dead coffee leaves the ants had found it and had it nearly ruined before I arrived. *Oryzomys caliginosus*, No. 12808, was under a soggy rotten log in a shady and dead leaf strewn ravine in the coffee. *Peromyscus*, No. 12812, was taken in a similar set

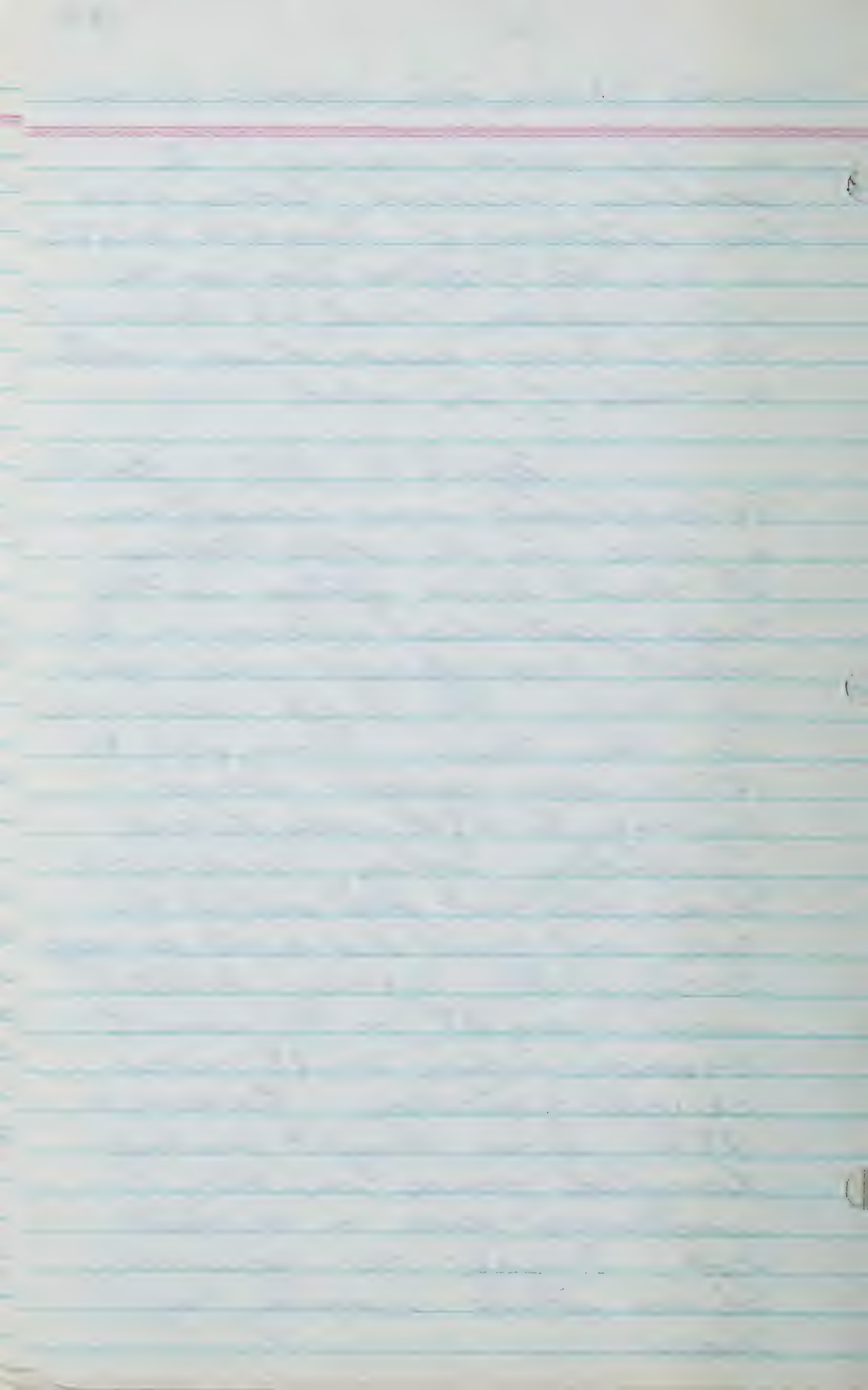
1927

P. 3

Hacienda Chilata, Dept., Sonsonate, Salvador

in the same ravine. A peculiar incident today was the catching of Sigmodon No. 12813 in an old hollow log in the coffee region and I know of no Sigmodon association within a mile of the spot.

April 22, 1927 - Another Reithrodontomys was caught in a tree in the coffee today. It must have gotten in the trap yesterday afternoon for badly decomposed and eaten by ants. The trap was still in the tree. Peromyscus, No. 12814, was caught where Nyctomys, No. 12809, was taken yesterday. Today, however the trap did not fall out of the tree and ants did some damage to the feet. Nyctomys, No. 12815, was caught on the small branch where No. 12810 was caught yesterday. Marmosa, No. 12816, was caught among tangled vines in the uncleared area on the hill top. I saw one squirrel, Sciurus while running my traps.

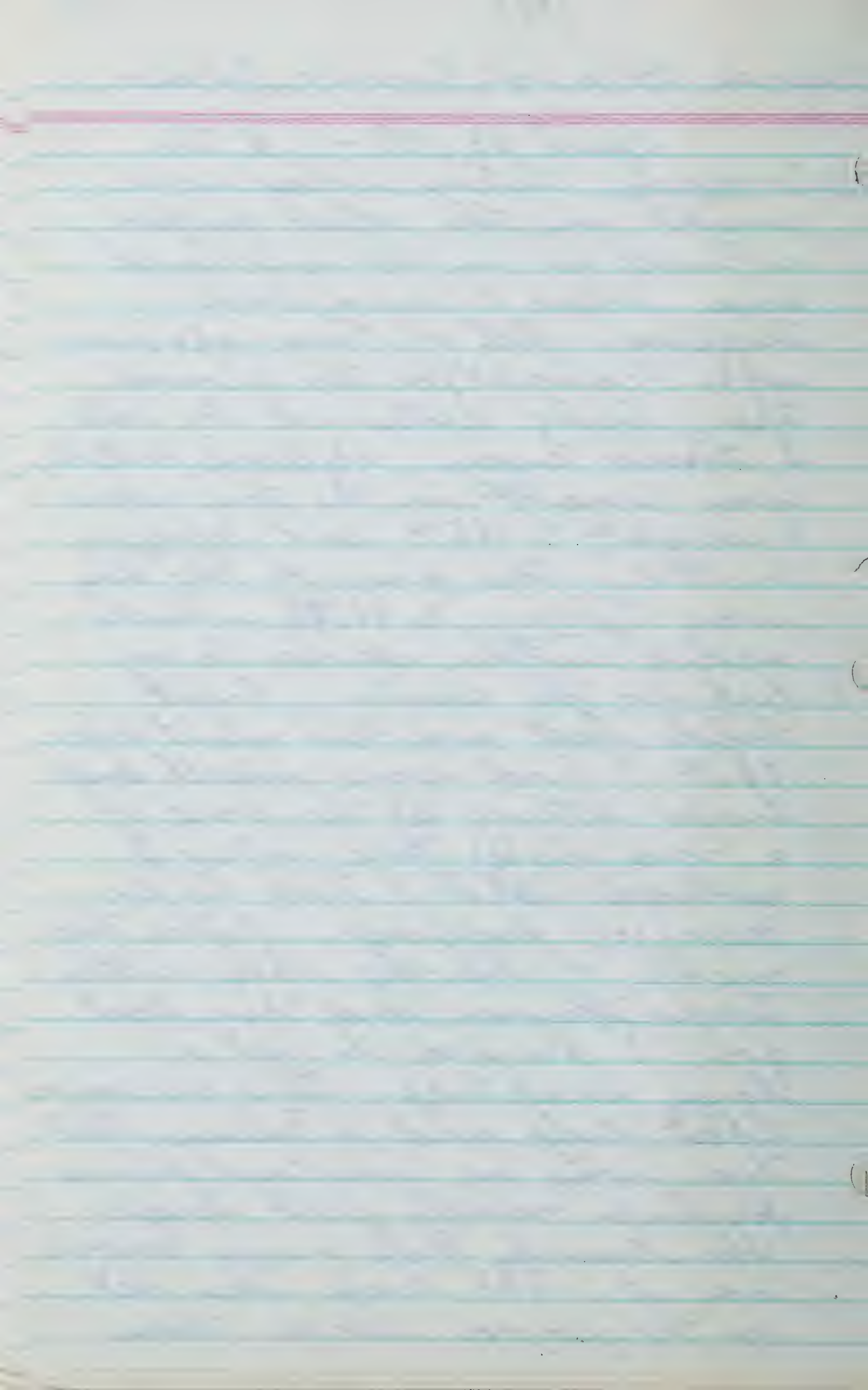


1927

P. 4.

Hacienda Chilata, Dept., Sonsonate, Salvador

April 23, 1927 - The Peromyscus taken today were caught in the coffee proper as well as in the uncleared area where I have been trapping. All of these specimens were caught on the ground. Three, being destroyed by ants, I threw away. Nyctomys, No. 12822, was caught in the tree where I caught No. 12809, and Peromyscus No. 12814. The prize of the day was Tylomys, No. 12826, which added another species to my list for the country. Night before last and the night before that I had some small snap-traps setting at the base of a very large tree where I noticed what I took to be Peromyscus droppings. After two nights of having these little traps thrown and their bait gone I decided to set a large snap trap. This morning that trap had a Tylomys. The tree was an immense thing perhaps ninety feet high. The trunk has many crevices in it. The trap was set on the ground where there



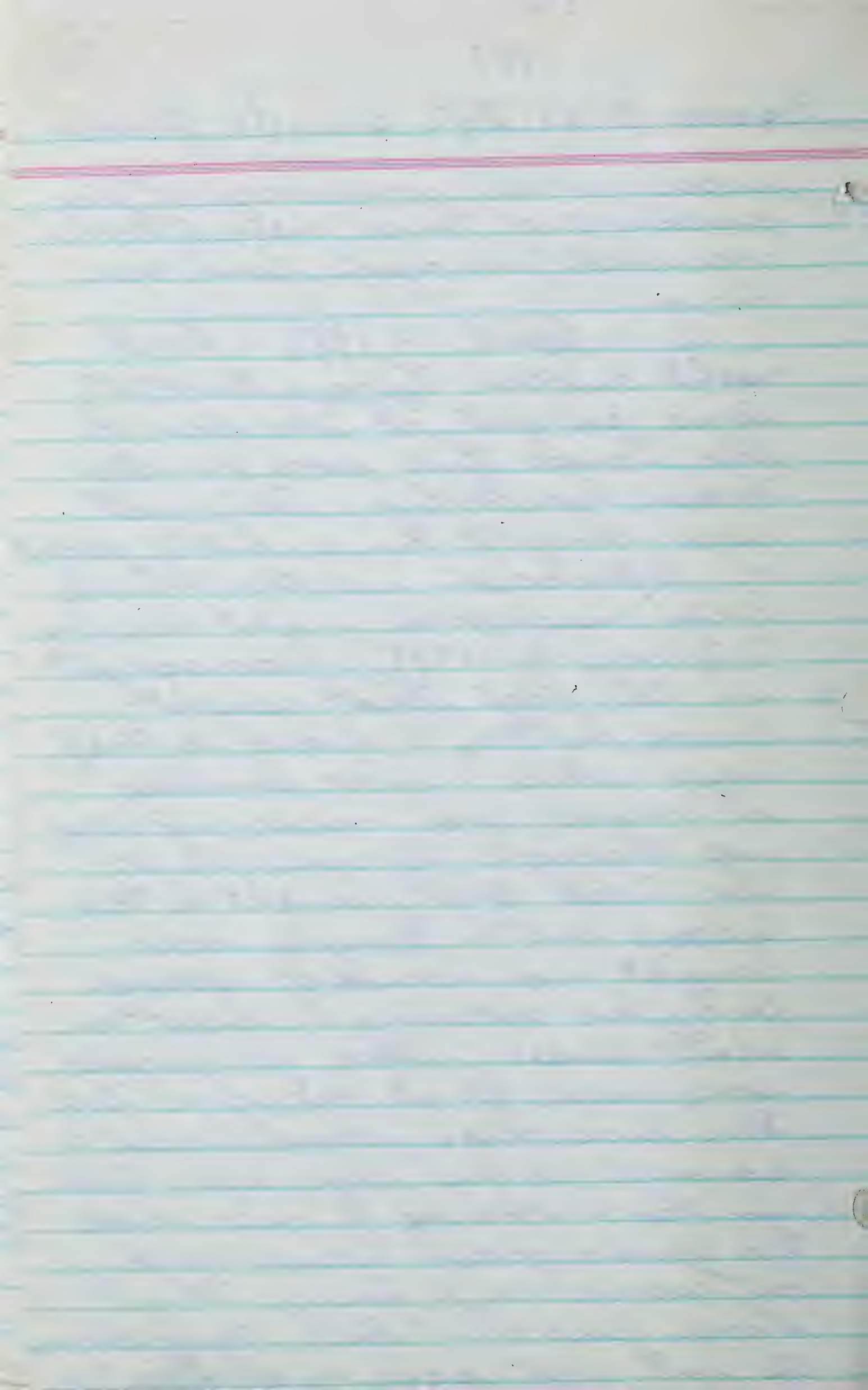
1927

P. 5.

Hacienda Chilata, Dept., Sonsonate, Salvador

were some evidences of the passing of these rats. Pills measured & averaged four m.m. long.

April 24, 1927 - Last night another Tylomys, No. 12827, was caught at the base of the large tree where one was taken yesterday. This rat was caught in a little pocket or depression in the trunk. Pills measured eight m.m. long. Ototylomys, No. 12828, was caught in the trap that caught Marmosa, No. 12816. I heard the trap snap while I was hunting at night and made my way up through the vines to it. The trap that caught the two Nyctomys and the Peromyscus was caught and wouldn't spring. Early this morning I saw an adult Sciurus when it dropped some green fruit out of a tree. This was near where I saw a squirrel a few days ago. Later in the morning I saw three two thirds grown Sciurus feeding on ^{green} leaves in a fence. When I stood perfectly still they continued to eat and paid no attention to me.



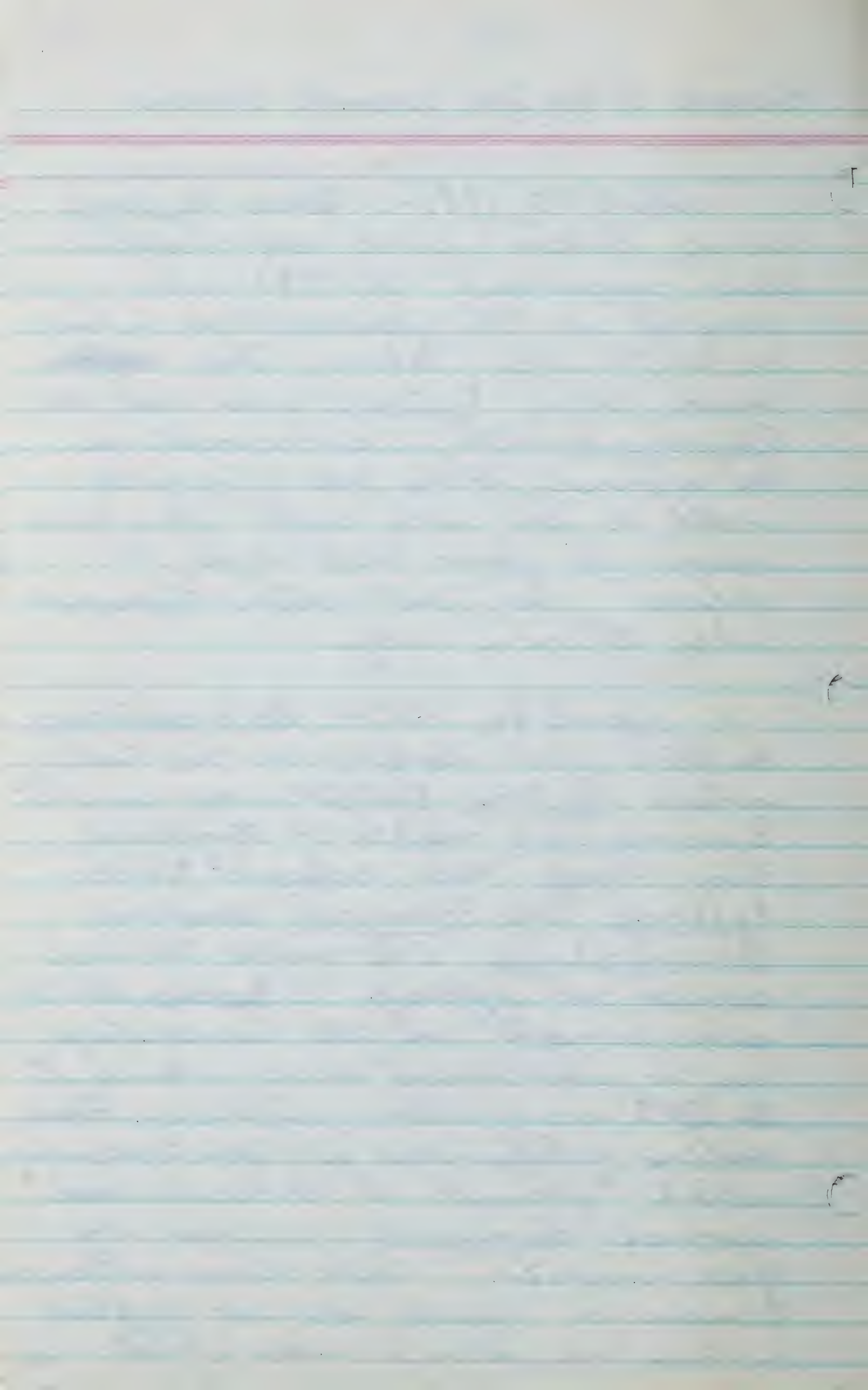
1927

P. 6

Hacienda Chilata, Dept., Sonsonate, Salvador

April 25, 1927- Four Nyctomys were taken from my trapline this morning. No. 12842 was caught in the famous tree where No. 12809 was taken. This ~~made~~ made three Nyctomys from that tree. Ototylomys, No. 12843, was caught on the ground at the base of a rock wall or low rock cliff. "This genus seems to favor that type of a place." Two ant eaten Peromyscus were thrown away.

April 26, 1927- Reithrodontomys, No. 12850, was taken in the trap where Nyctomys No. 12809 was caught. During six nights of trapping this trap has caught three Nyctomys, one Peromyscus, and one Reithrodontomys. One night the trap would not spring. Nyctomys, No. 12851, was caught in the same trap in the uncleared area where No. 12843 was taken yesterday. Fleas eating wasps were at this specimen when I found it. I have had several Peromyscus ruined by these insects. Late this afternoon I saw a Sciurus as it ^{squinted} scaled a tree in which was a nest.



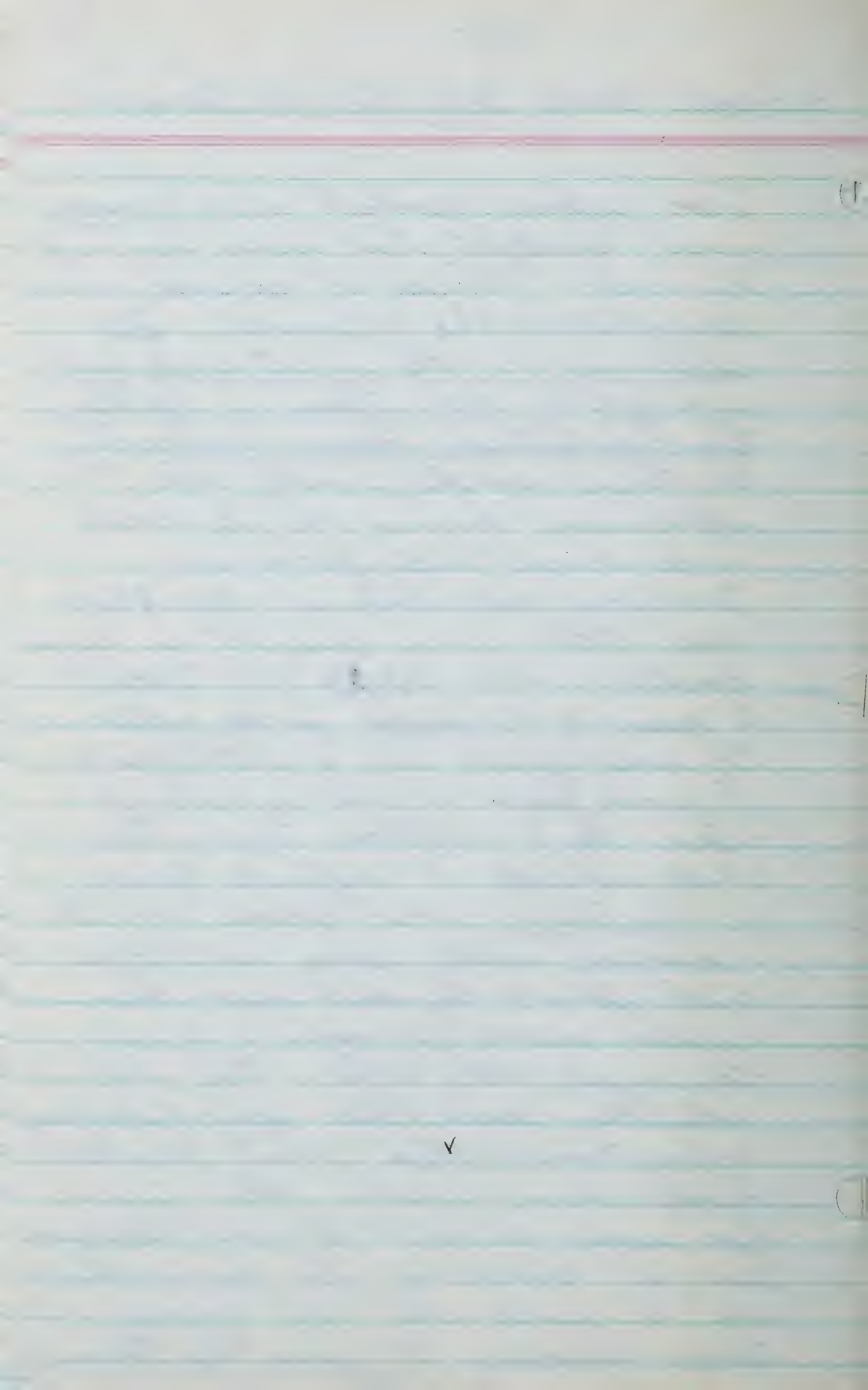
1927

P. 7.

Hacienda Chilata, Dept., Sonsonate, Salvador

Two spiny-pocket mice, Liomys, were caught, but were ruined by ants. These of course were caught on the ground. In referring to the right and left wings of the uterus, I taken the position dorso-ventrally. In other words, with the specimen lying on its back and head away from me.

Didelphis mesaméricanus, Nos. 12860 and 12861 were caught in traps baited with Catnip Oil. Today I saw a Siomodon in the coffee. It was found in a little patch of green grass from which it ran to a hollow tree. The bat which I referred to as a New Genus, was found by G.D.S. hanging under some roots of a tree where the dirt had been graded away to make a trail through the coffee. The bat was solitary and the pile of droppings below indicated that the bat had been using this place for some time. It was hanging in a clinging to the roots in a little cone like cavity thus hiding it from the trail.



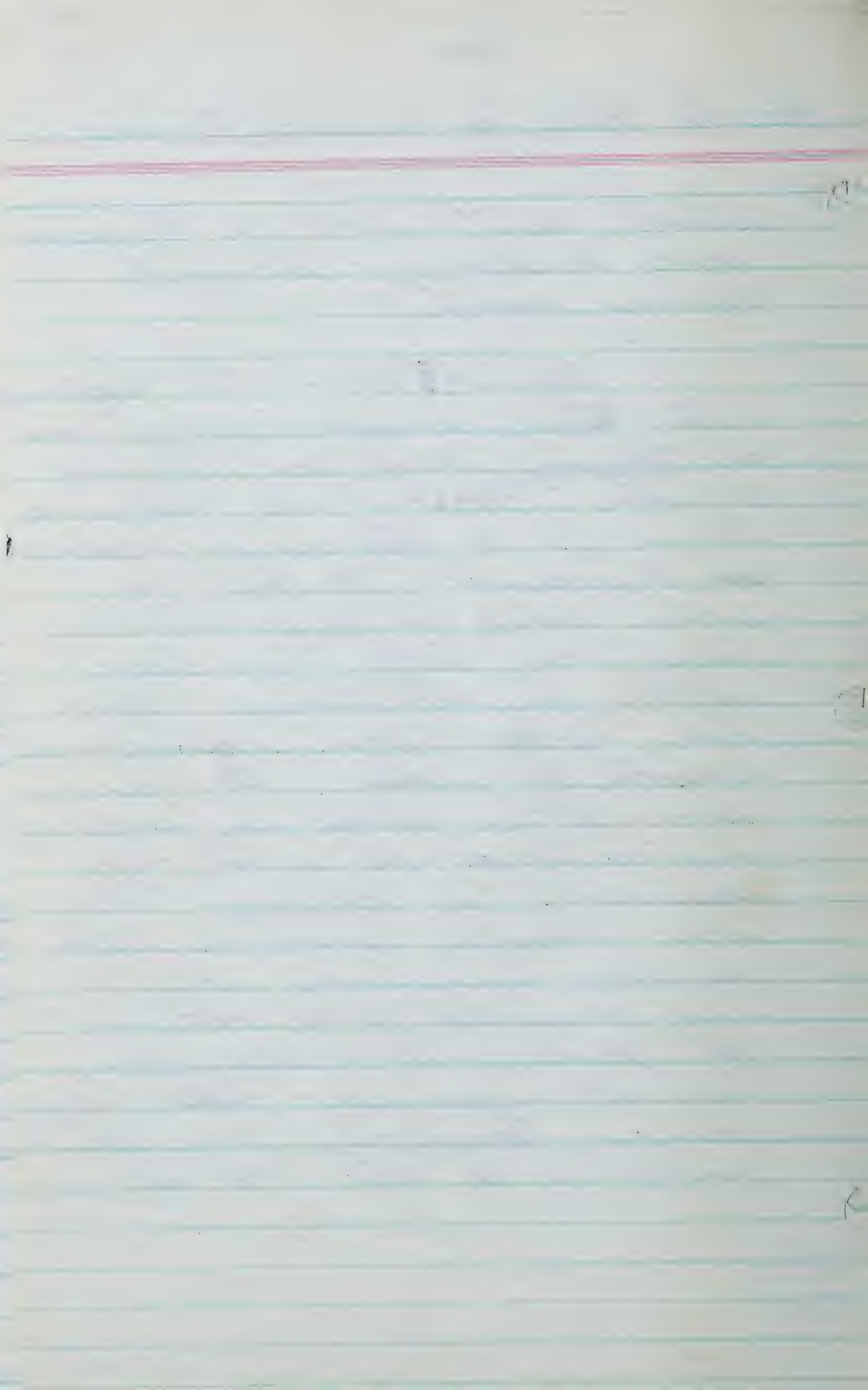
1927

P. 8.

Hacienda Chilata, Dept., Sonsonate, Salvador

Small fruit seeds in the faeces gave evidence of its fruit eating habits.

April 27, 1927 - The trapline had three common Peromyscus and an Ototylomys which was destroyed by ants. West of the hacienda house is a deep cañon bordered ~~on~~ at frequent intervals on either side by perpendicular lava rock cliffs. The clear water in the stream flows over rocks worn round and smooth by erosion. It was along these cliffs in semi-caves or caves that we found more specimens of the New Genus. They were usually found in little cup like depressions where they were concealed from outside. We found these mammals on the wall under some Clusia climbing vines. Saccopiterax were found more in the open. We saw five.



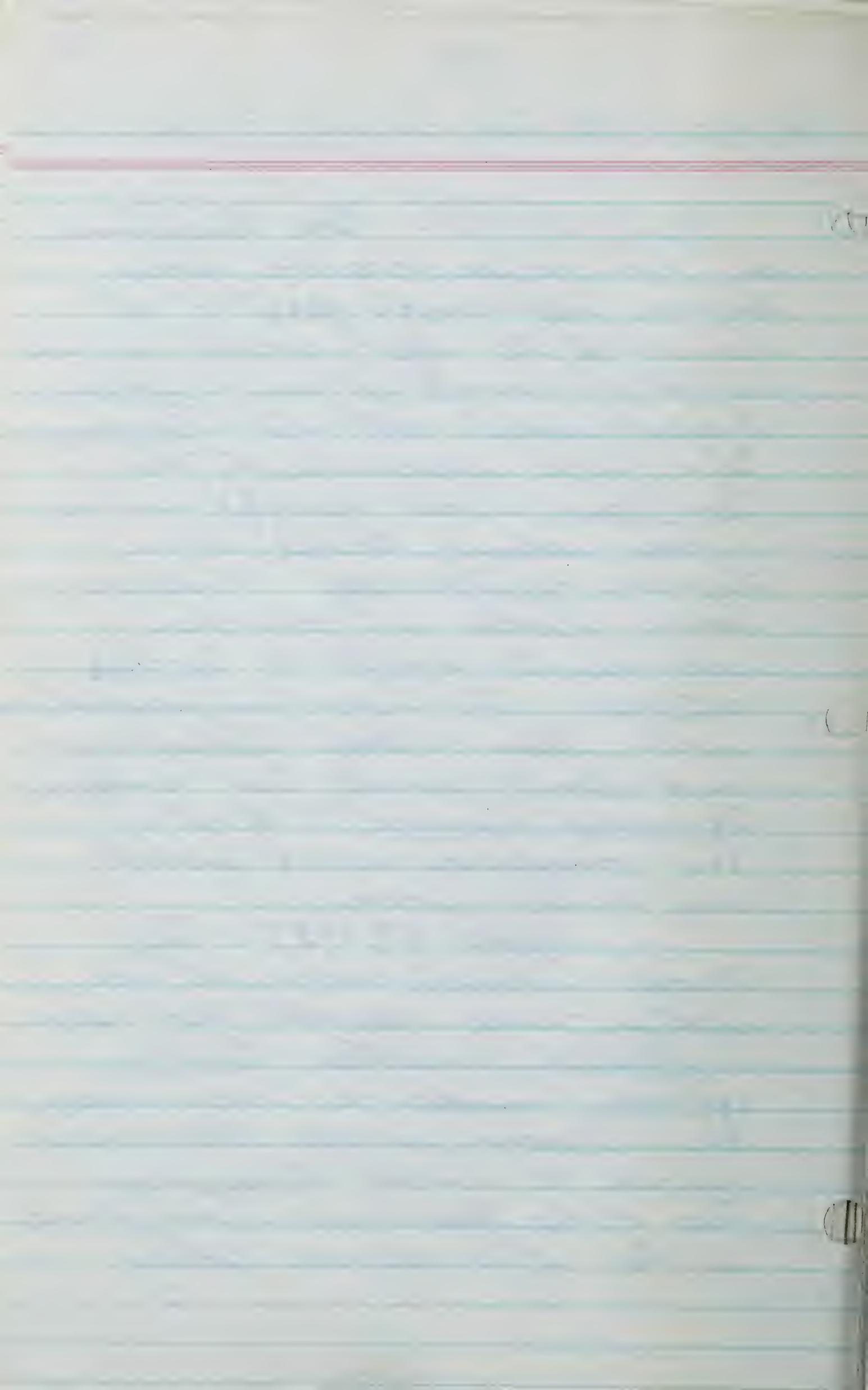
1927

P. 9.

Hacienda Chilata, Dept., Sonsonate, Salvador

April 28, 1927. The trap line in the coffee region was taken up and part of it removed to the rocky ravine west of camp where sixteen traps were set for Rheomys. Two more specimens of the New Genus was caught in the rocks where those were taken yesterday. Under a large rock in another ravine I caught a Carollia castanea. It was in association with two or three Glossophaga and about twenty five vampires Desmodus rotundus. Most of the vampires were about two thirds grown.

April 29, 1927. The traps which were set for water mice caught two crabs. I killed another Carollia castanea under a rock near the stream, where there were seven or eight Glossophaga. Two of the New Genus were found in the coffee region today.



1927

P. 10

Hacienda Chilata, Dept., Sonsonate, Salvador

April 30, 1927- The interesting find today was Eumops glaucinus. For two or three days our house boy had been coming to me and saying that there were bats up in the tank house but that he couldn't find them. One day I went up but could find none.

This morning Ed. came down from the tank house with an immature specimen No. 12889. which he ^{had} found clinging to one of the rafters next to the tin roof. I went up again and this time we succeeded in dislodging three adults from between the rafters and the corrugated iron roofing. It is beyond me how they were able to hide so successfully.



1927

1

Volcano Santa Ana, Dept., Sonsonate, Salvador

May 1-5 - From Hacienda Chilata to Volcano Santa Ana.

May 6, 1927 - Yesterday we reached Santa Ana and went up to the finca Las Cruces where I took a mule and rode on up to the finca Santa Marta where our camp was located. The region through which I passed ~~was~~ the oldest coffee region in Salvador. Santa Marta is located at an altitude of 4500 feet on a more or less plateau region which is dotted with steep round wooded hills, which were undoubtedly at one time volcanos like Santa Ana and Misalco are now. Cerro Los Parangos is the nearest of these mountains to the finca Santa Marta. This mountain is very damp ~~and~~ at this time of the year. It is quite heavily wooded but not covered parasitic growths and ferns like Los Escalones. Also, the trees are not as large. Nyctomys, No. 12891, and Peromyscus, Nos. 12892 to 12897 inclusive were taken on Cerro Los Parangos today. Last night I heard bats flying in our room, so I got up and closed the door.

1927

2

Vol. Santa Ana, Dept., Sonsonate, Salvador

on them. This morning I had Lonchoblossa, No. 12898, and Glossophaga, No. 12899. Lonchoblossa had no tail and the zygomatic was not complete.

May 7, 1927- Sets were made for Orthogeomys in corn fields near camp. Much of this region, corn fields, is being planted in young coffee.

May 8, 1927- As usual I find these gophers hard to catch. One female, No 12909, was taken today.

May 9, 1927- Nothing worthy of noting happened today. I find the number of species of mammals unusually low in this locality.

May 10, 1927- Last night is the first night that it didn't rain since we came to this camp. Near camp I found the old roofing of a coffee nursery, which had been thrown off. This roofing consisted of cypress branches and long glass. It was in this that I caught Reithrodontomys, Nos. 12914, 12917, and 12918.

1927

3

Volcano Santa Ana, Dept., Santa Ana, Salvador

May 11, 1927 - Today I put out a trap line on the Volcano Santa Ana proper in the Department of Santa Ana. The first line was put out at an altitude of 6150 feet in the semi-humid forest on the north slope. The vegetation was somewhat heavier here than on Cerro Los Yarangos, also there were more ferns and moss. Snap traps both large and small were set at the base of trees and under logs ~~in the~~ among the ferns. The second trapline was set out at an altitude of 6800 feet, where I set all the snap traps both large and small in brush like trees full of trash and parasitic plant roots. This association is just above the semi-humid forest, and continues on up to the crater with the brush gradually giving away to grass or grazing land.

1927

4

Volcano Santa Ana, Dept., Santa Ana, Salvador

May 12, 1927- The two Neotoma, Nos. 12934 and 12935, were caught in the brush like trees in the upper volcanic region. Although I set traps in many such place I was able to catch the Neotoma in only one bush. Peromyscus were taken in similar sets. I have seen no other association quite like this one. The trees look something like oaks and yet they are not. I think that upper volcanic region fits it better than any thing else.

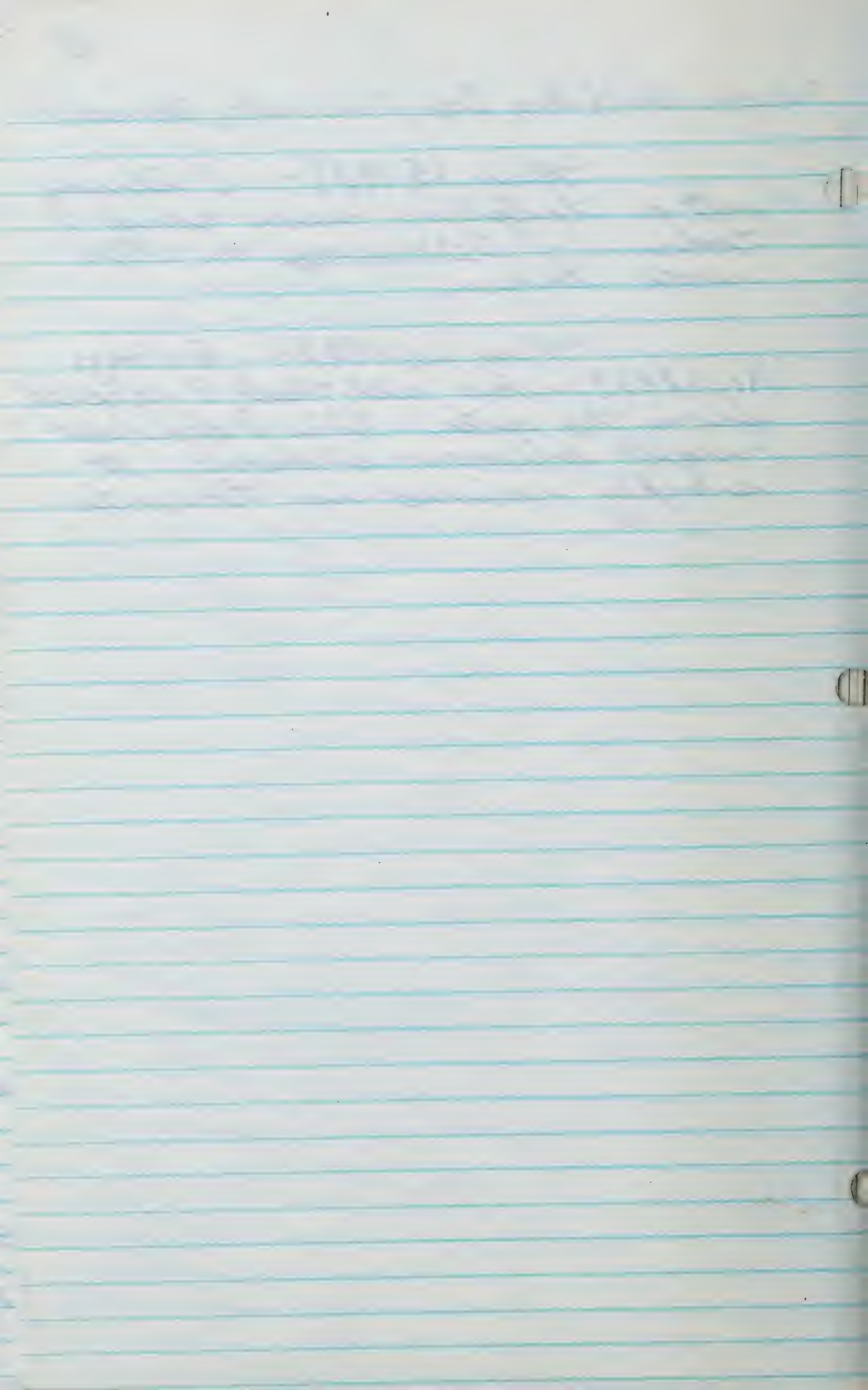
May 13, 1927- No more Neotoma. The rains are fierce. They spring my traps and wash the bait off. G.D.S. killed another Bassaricyon, No. 12944, last night. They are ~~called~~ ~~called~~ - called Ukhas by the natives. The animals make that sound at night in the jungle.

May 14, 1927- An Orthogeomys and some Peromyscus was all I had today. I brought in my traps from the volcano today.

Volcano Santa Ana, Dept., Sonsonate, Salvador

May 15, 1927 - I strung
out a trapline near camp
today. Orthogeomys No. 12950
was taken.

May 16, 1927 - Baiomys
No. 12952 was all that I rescued
from the ants. This I did last
night between showers. It
simply rained in torrents.



1927

1

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

May 17-23, 1927 - From Volcano Santa Ana to San Salvador then back to Lake Guija.

May 24, 1927 - This region is very much like the country around Divisadero and many other sub-tropical stations that we have worked. I stung close to one hundred snap traps in some sub-tropical second growth back of camp. Here I found a knoll covered with large lava rocks and it was under these rocks that I set the traps so that they would not be sprung by the driving afternoon and evening rains. Part of these sets were made under large lava rocks along a ledge. This morning I had two *Peromyscus* Nos. 12954 and 12955 in the traps which were set on the brushy knoll. The ants had eaten the ears and nose off of one of these. There were five *Liothyris*, three of which were destroyed by ants. No. 12956 was caught on the ledge. Ants had eaten the oatmeal off of all the peddles. It rained yesterday afternoon and drizzled all night.

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1927

2

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

May 25, 1927- Today I ran a trapline in another section. This place was known by the native as "Mal Payes" or bad country. The vegetation was thick and fairly heavy but due to sharp lava rocks all through the region no people occupied the ground for agricultural purposes. This flow of lava ~~and~~ obviously did not come from ~~a~~ crater but from what might have been called blow holes. I crawled down in one of these more or less crater like holes where I used a flashlight to light my way. There in the cracks and crevices I saw a colony of at least thirty vampires Hesmodus rotundus both old and young. They hopped about for dark corners when my light was turned on them. There were no other species there. I followed the trail farther into the more dense jungle. The lava rocks were thicker and, now, they gnawed away at my boots. I at last came upon a ledge which projected up ~~fairly~~ the sun light about forty feet.

1927

3

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

In a crevice just barely shaded from the sunlight were two little bats clinging head down and braced with their forearms against the lava rock ledge. Their very position of clinging to the rocks immediately marked them to me as sac-winged bats, Emballonaridae. I backed off and shot them with my 440 shot pistol. Glancing shot made a pulp out of the female but the male No. 18958 —, was a good specimen. More bats flew out from deeper down in the crack, I finally shot one of these at close range and identified the remains as *Glossophaga*. On the trap line near camp, in the sub-tropical second growth I had three *Baiomys*, one *Otodylomys*, and two *Liomys* destroyed by ants. One meal had been taken from the other trunks. Also, in a muddy trail near camp I saw tracks where a *Cuniculus* had passed sometime late in the night.

Handwritten text in Urdu script, appearing to be a letter or a document. The text is written on lined paper and is mostly illegible due to blurring. It begins with a salutation and contains several paragraphs of text.

1927

4

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

May 26, 1927 - Last night it didn't rain so I took our native assistant and struck out for Mal Payes. I let him carry the light as I had a touch of fever and a headache. I carried a flash light in my hand to keep from kicking all the lava rocks in the trail out by their roots. José never slipped a thing. Once when I held my flash light out toward the brush I caught a faint shine. As I walked up closer I saw that I was shining an Otomyomys. He was on a horizontal limb about three times the size of a lead pencil, and was couched crosswise with his tail straight out as a ballancer. About three feet farther along the limb was a Nyctomy partly hidden behind a horizontal twig. For a minute they held their positions while I watched them. Instead of shooting I decided to learn something of their activities. I stepped up nearer and frightened

1927

5

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

them with my light. The Otatylomys ran down the horizontal limb, jumped off about four feet to the ground, and ran into a pile of lava rocks. The Nyctomys ran up the horizontal twig, with squirrel like agility, off onto a vine and disappeared some thirty feet above in the dense foliage of a tree. The trap line that I strung in Mal Payes yesterday had nothing. I shifted traps to where I saw the rats last night. More specimens were destroyed by ants on my line back of camp. While standing in the jungle near the edge of the lake today I saw a Dasyprocta come hopping along a trail out of the brush, just as I was ready to fire on it I saw two more close behind so I turned to them and got the two with one shot. The other dashed off sporting. Also I killed a ~~Sciurus~~ Sciurus, near the edge of the lake.

Handwritten text on lined paper, mostly illegible due to blurriness. The text appears to be a continuous paragraph or list of notes.

1927

6

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

May 27, 1927 - Last night it didn't rain again but I felt too "bum" to go out with the light. José did however and shot a Procyon and two Urocyon. One of the foxes was shot up so badly that it had to be thrown away. He said that the fellow who was with him shot a deer but that it got away. ~~In all my traps over one hundred I had only one Peromyscus this morning, and the ants had one of its ears.~~ There was nothing in my traps.

May 28, 1927 - José failed to get anything last night. In all my traps over one hundred I had only one Peromyscus and the ants got one of its ears. However van Rossem saved the day for me by bringing in eight Rhynchiscus. These little bats he found clinging to the under side of a willow Salix and over a stream of running water. Van Rossem saw a ~~co~~ Canis coyote today at the edge of a clearing in the brush.

... ..

... ..

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1927

7

El Tablon, Lake Guija, Dept., Santa Ana, Salvador

May 29, 1927- There was nothing in the traps again today. I went with van Rossem to get more Rhynchiscus and to see where the others had been taken. There in a fertil little valley a good sized stream ran through a small banana grove. It was near the grove where a willow tree perhaps two feet in diameter leaned out over the stream. It was under this trunk that the bats were hanging. One in flight looked very much like a small swallow in flight. The specimens fell in the water when shot. In the banana grove I shot a Uroderma. Two others escaped.

March 1st - 1st day of the month

March 2nd - 2nd day of the month

March 3rd - 3rd day of the month

March 4th - 4th day of the month

March 5th - 5th day of the month

March 6th - 6th day of the month

March 7th - 7th day of the month

March 8th - 8th day of the month

March 9th - 9th day of the month

March 10th - 10th day of the month

March 11th - 11th day of the month

March 12th - 12th day of the month

March 13th - 13th day of the month

March 14th - 14th day of the month

March 15th - 15th day of the month

March 16th - 16th day of the month

March 17th - 17th day of the month

March 18th - 18th day of the month

March 19th - 19th day of the month

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Hacienda Zapotitan, Dept., La Libertad, Salvador

June 1 - 3, 1927 - From El Tablon, Lake Guija, to San Salvador then to Hacienda Zapotitan.

June 4, 1927 - Sick. Unable to get away from camp.

June 5, 1927 - Sick. One of the Miradomas brought me in a Potos, No. 12984 E, which he shot at dusk in the heavy sub-tropical jungle just at dusk.

June 6, 1927 - Unable to get out.

June 7, 1927 - "Damn the luck."

June 8, 1927 - went out with steel traps anyway, I set eight steel traps on an in the Rio Sucio, in likely places for Lutra and Chironectes.

June 9, 1927 - One of the boys brought me in a Chironectes, No. 12985, which he said I had caught in a trap that I had set in about three inches of water close to the bank. In the States I would have called the set a good one for a Muskrat.

1. The first part of the book is devoted to the study of the

history of the country from the time of the first settlement to the present day. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

2. The second part of the book is devoted to the study of the present state of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

3. The third part of the book is devoted to the study of the future of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

4. The fourth part of the book is devoted to the study of the present state of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

5. The fifth part of the book is devoted to the study of the future of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

6. The sixth part of the book is devoted to the study of the present state of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

7. The seventh part of the book is devoted to the study of the future of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

8. The eighth part of the book is devoted to the study of the present state of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

9. The ninth part of the book is devoted to the study of the future of the country. The author has collected a great deal of material for this purpose, and has arranged it in a very interesting and instructive manner.

1927

P.L.

Hacienda Zapotitan, Dept., La Libertad, Salvador

June 10, 1927 - off to San Salvador to see a doctor.

June 11 - 16, 1927 - Doctors are most unreasonable people when a man would like to be accomplishing something, however I am forced to believe that he knew his stuff.

June 17, 1927 - off to Zapotitan again. Van Rossem was kind enough to turn over his faithful assistant Jose so that I might keep in out of the wet as much as possible. It had rained every day that I was in San Salvador.

June 18, 1927 - It rained nearly all day and I did not venture out as per doctor instructions.

June 19, 1927 - One mile almost directly east of the hacienda house the Rio Lucio flows out of the Laguna Zapotitan on its winding course to the master stream Rio Lempa. Near this spot and on the

1927

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Hacienda Zapotitan, Dept, Libertad, Salvador

very bank of the small river is a saw mill at the edge of the heavy dripping jungle. The river, 30 to 50 feet wide in most places and from six to ten feet deep flows between low banks (3 to 4 feet high) and is shaded on either side by the heavy trees. In many places the branches ~~from~~ overlapping each other form a complete shade even at high noon. Contrary to the name Rio Sucio the water is quite clear and ~~deep~~ far down from the surface one can see water plants switching horse tail fashion in the current. Lilies and other floating plants may be seen in sheltered nitches along the banks or even anchored to old rotten logs in mid stream. The current is not swift but steady.

When I returned to the saw mill today the river ^{was} about two feet higher than it was the week before. Due to the rise of the waters Jose and I were able to make only 14 sets. The sets were made

1927

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Hacienda Zapotitan, Dept., Libertad, Salvador.

east from the saw mill. We both were soaked from head to foot by the damp foliage and in some places we waded hip deep in water. The mosquitos swarmed around us in a cloud. Thanks to my big hat and heavy jacket they delivered many good punches in vain. Shortly after noon it started a drizzle which lasted until nearly morning.

June 20, 1927 - I met Jose half way to the hacienda house with a bag over his shoulder. When we were yet a hundred yards apart he shot a hand high above his head with four fingers held wide apart. I gave a "Kansas war whoop" and kicked my mule so hard in the ribs that he grunted. A minute later and there were four fine water opossums lying at my feet. Jose chattered like a parrot but I never heard him. At last I came to

1927

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Hacienda Zapotitan, Dept., La Libertad, Salvador

and got the dope. One was caught in a small round hole (6 in. in diameter) in the bank about two feet from the water. This hole looked as if it was being used, but the rains had washed away all tracks. There were some water soaked sticks and trash that looked as if they had been partly drawn into the hole. A well worn trail led from the hole down the bank to the water. Another was caught on the root of a large tree that stood on the very edge of the river bank. The root on which the opossum was taken extended down to the water. ~~To set the trap~~ I had to chip out part of the root to partly conceal my trap. Faeces containing fish bones and scales, that I saw on the root caused me to make this set.

The third was set on a little ledge between two roots and about two inches under the water. This set appeared as a likely landing place.

1. The first part of the paper is devoted to a general discussion of the problem.

2. In the second part, we consider the case of a single particle.

3. The third part is devoted to the case of a system of particles.

4. In the fourth part, we consider the case of a continuous medium.

5. The fifth part is devoted to the case of a system of continuous media.

6. In the sixth part, we consider the case of a single continuous medium.

7. The seventh part is devoted to the case of a system of continuous media.

8. In the eighth part, we consider the case of a single continuous medium.

9. The ninth part is devoted to the case of a system of continuous media.

10. In the tenth part, we consider the case of a single continuous medium.

11. The eleventh part is devoted to the case of a system of continuous media.

12. In the twelfth part, we consider the case of a single continuous medium.

13. The thirteenth part is devoted to the case of a system of continuous media.

14. In the fourteenth part, we consider the case of a single continuous medium.

15. The fifteenth part is devoted to the case of a system of continuous media.

16. In the sixteenth part, we consider the case of a single continuous medium.

17. The seventeenth part is devoted to the case of a system of continuous media.

18. In the eighteenth part, we consider the case of a single continuous medium.

19. The nineteenth part is devoted to the case of a system of continuous media.

20. In the twentieth part, we consider the case of a single continuous medium.

21. The twenty-first part is devoted to the case of a system of continuous media.

22. In the twenty-second part, we consider the case of a single continuous medium.

23. The twenty-third part is devoted to the case of a system of continuous media.

24. In the twenty-fourth part, we consider the case of a single continuous medium.

1927

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Hacienda Zapotitan, Dept., La Libertad, Salvador

The fourth set was very much like the third but was set on ~~the~~ a little ledge under some over hanging brush and roots. Another likely landing spot.

Points regarding fresh specimens.

1. Tail - The tail is more or less concave ventrally with a mid ventral line of attachment extending from the base of the tail to the tip. The tail is prehensile.

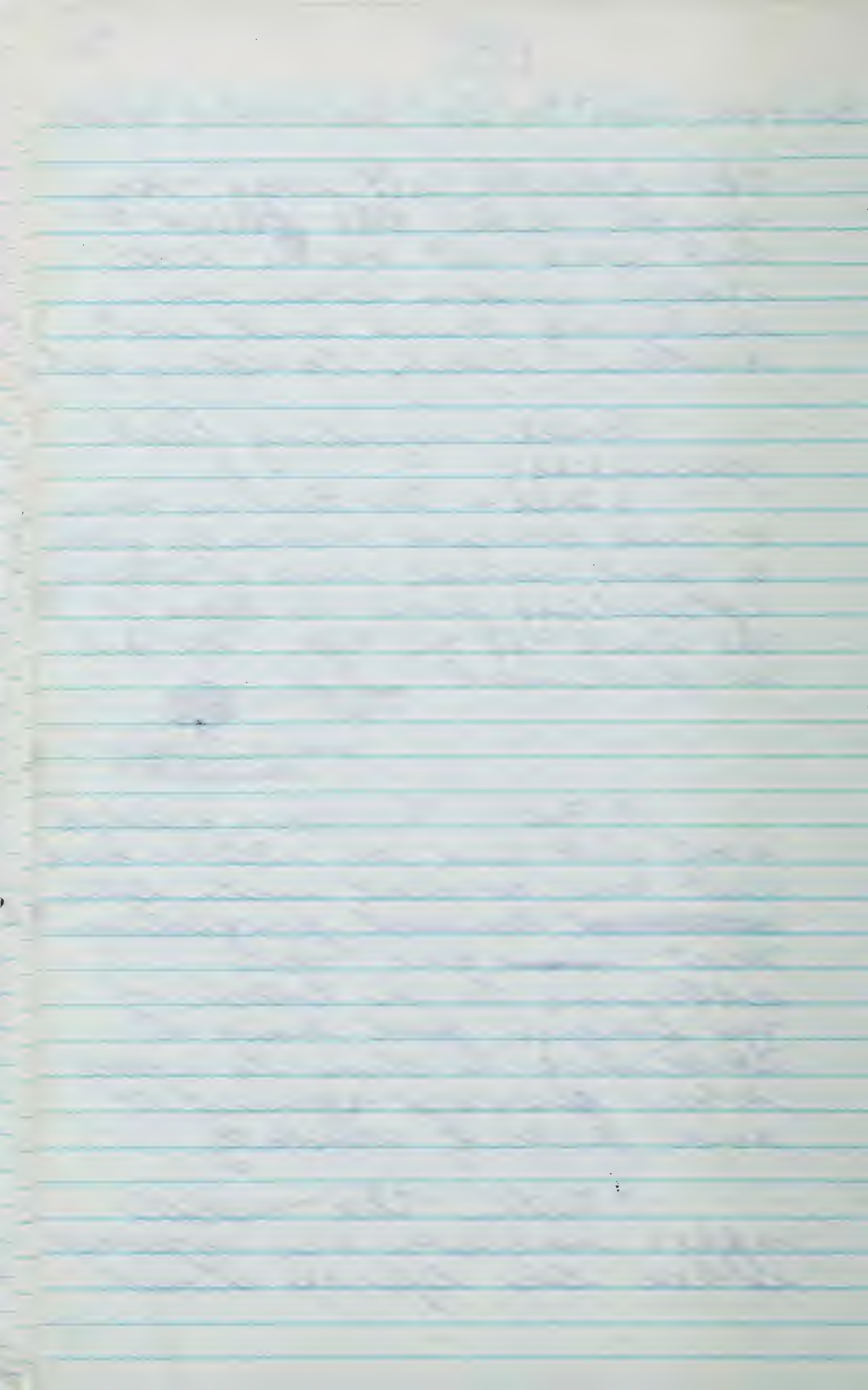
cross-section
of tail



midventral line of
attachment

2. Feet - The heavy padded front feet and the webbed hind feet are covered with little ~~tubercular~~ dermal projections that ~~were~~ are very adhesive to the touch of my fingers and have a tendency to cling to wood when pressed against it and pulled caudally.

3. Teeth - The middle upper incisors are exposed when the lips are closed.



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Hacienda Zapotitan, Dept, La Libertad, Salvador

June, 21, 1927 - The continuous rains raised the little river until all my traps were under water.

June 22, 1927 - José brought me No. 12990, which was caught on a little ledge several feet below the surface of the water. José said that the river was rising steadily and spreading out through the jungle. I told him to recieve all the traps that he could.

June 23, 1927 - José, pool devil, brought in half of the traps, and looks like he will be a likely patient for the doctor on our return to San Salvador. The temporal is still holding forth. "Thanking God for small favors" we shall sail for San Salvador day after tomorrow.

June 24 & 25, 1927 - in San Salvador.

In reviewing my notes I find that I failed to record the ~~see~~ seeing of a colony of (*Rhynchiscus*)

1. The first part of the paper discusses the importance of the study and the objectives of the research. It also mentions the scope of the study and the limitations. The second part of the paper discusses the methodology used in the study. It includes a description of the sample, the data collection methods, and the data analysis techniques. The third part of the paper discusses the results of the study. It includes a description of the findings and a discussion of their implications. The fourth part of the paper discusses the conclusions of the study and the recommendations for future research.

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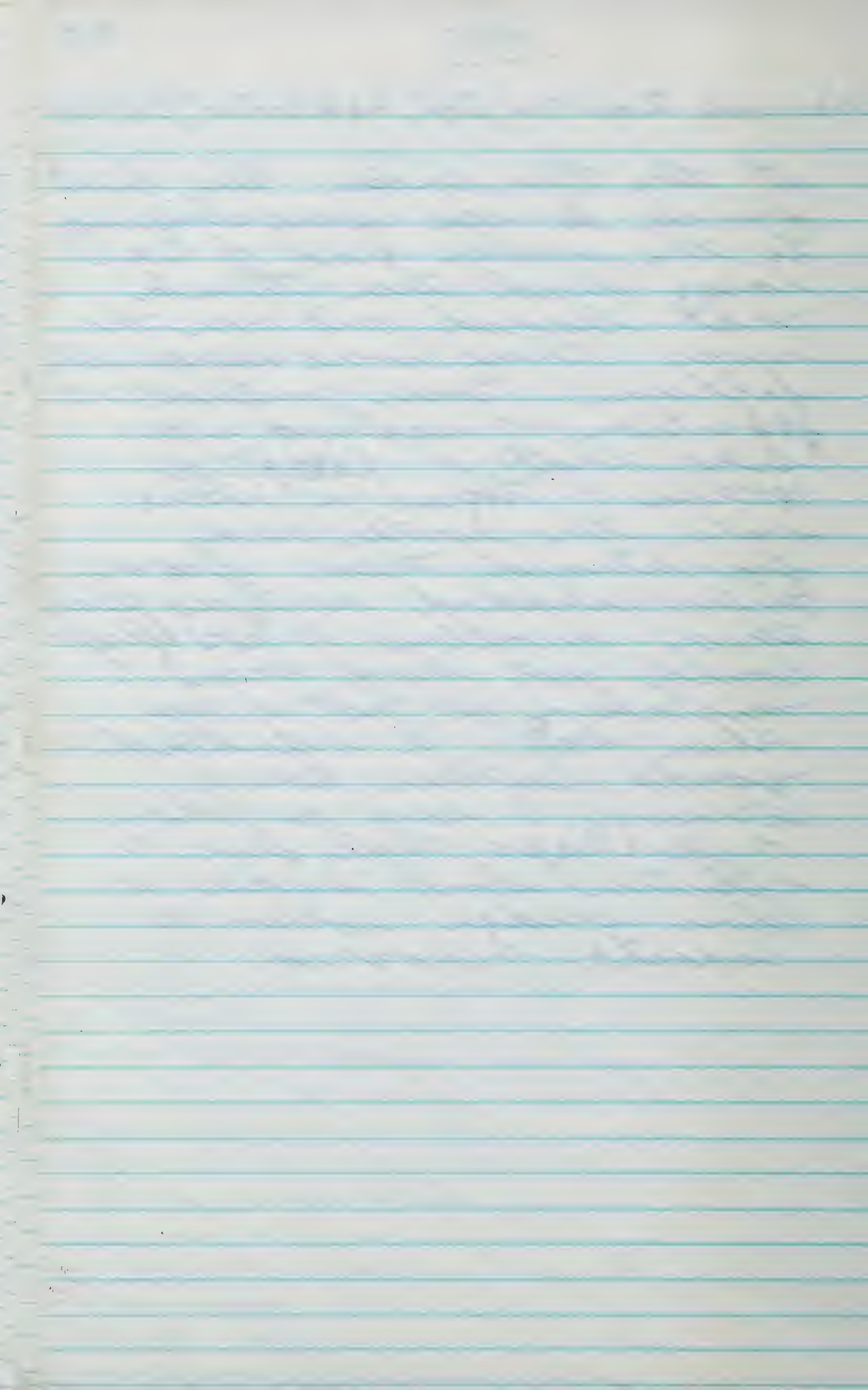
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Hacienda Zapotitan, Dept., La Libertad, Salvador

at the Rio Sucio. The first bunch I saw were clinging to the under side of a large dead tree trunk that leaned out over the river. There were approximately fifteen. Their method of position of resting was like that of Peropteryx. When I threw a stone into the water and frightened them from their shaded resting place their swallow like flight could not have been mistaken for that of any other bat. A hundred yards farther down stream I saw a colony of perhaps thirty five flutter about under a flow bridge when a carreta crossed.



1927

La Libertad, Dept., La Libertad, Salvador

June 26, 1927 - I was invited to join a deer hunt which was to take place twelve kilometers inland from the port of La Libertad. We reached the hacienda ~~rather~~ early and found that one of the men had been hunting the night before and had shot a doe. He was kind enough to give me the skull, No. 12991. The hacienda house is on the road that leads from La Libertad to San Salvador. From there we went out over the rough and rugged terrain to the east. I saw many signs of deer and some signs of peccari. There are few native huts in the region and the place is undoubtedly alive with animal life. One of the boys shot a monkey far down in the jungle. I didn't see it. From the description he gave me I assume that it was Ateles.

June 27, 1927 - San Salvador

1927.

Hacienda Venecia, Dept., San Salvador, Salvador

June 28-29, 1927 - These two days I spent on the Hacienda of Sr. Don Jorge Melendez hunting for squirrels (Polioptila ^{Sciurus} v. variegatoides) but I never saw a squirrel.

I was fortunate to see two Dasyprocta in captivity. While feeding these animals sat ~~on their~~ up like a squirrel and held the pieces of pineapple on which they were feeding with their front feet. When frightened the agoutis threw up the long hairs along their back very much like a porcupine does, to protect itself.

June 28-29 1927 - This
two days I spent on the
excursion of the
Wabash River to
begin the trip to
the West.